SERVICE MANUAL

TRAGBARER
COLOR-TV UHF/VHF
MIT RADIO UKW/MW/LW

MODELL COLOR 8509

ORION

J17033'81
0213'81

ELECTRICAL SPECIFICATIONS

TV SECTION

Picture Size	5 inch
System	PAL-CCIR-B,G
Frequency Range: VHF	2 - 12 CH, 47 - 230 MHz
UHF	21 - 69 CH, 470 - 862 MHz
Maximum Sensitivity: VHF	30 dB
UHF	35 dB
Intermediate Frequency:	
Picture IF Carrier Frequency	38.9 MHz
Color Subcarrier Frequency	34.47 MHz
Sound IF Carrier Frequency	33.4 MHz
Sound Intermediate Frequency	5.5 MHz

RADIO SECTION

Frequency Range: MW	515 - 1605 KHz
FM	88 - 108 MHz
LW	148 - 255 KHz
Intermediate Frequency: MW,LW	455 KHz
FM	10.7 MHz
Maximum Sensitivity: MW	60 dB/m
FM	25 dB
LW	68 dB/m

GENERAL

Maximum Output Power	300 mW
10% THD Output Power	200 mW
Power Source	AC 220V DC 15V Battery "D" cell x 10 DC 12V Car Battery DC 10.8V Rechargeable Battery
Speaker	16 ohm
IC	6
Transistor	23
Diode	44
L.E.D.	7
TV Tuner Unit	1

FOCUS ADJUSTMENT

Adjust focus control, on the rear of the cabinet, for fine picture.

SUB BRIGHT ADJUSTMENT

1. Receive the signal of test pattern.
2. Contrast and brightness controls set to minimum.
3. Adjust gray scale to black with VR613.
   (Refer to Figure 1-A.)

SUB CONTRAST ADJUSTMENT

1. Receive the signal of test pattern.
2. Contrast and brightness controls set to maximum.
3. Adjust gray scale to black with VR602.
   (Refer to Figure 1-B.)

AUTO CONTRAST ADJUSTMENT

1. Receive the signal of test pattern.
2. Contrast and brightness controls set to maximum.
3. Auto switch to on.
4. Adjust gray scale to black with VR610.
   (Refer to Figure 1-C.)

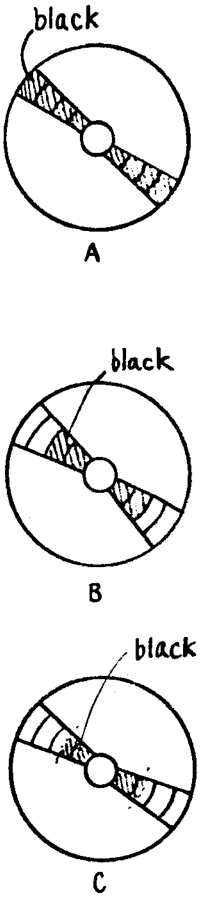


Figure 1 TEST PATTERN

APC ADJUSTMENT

1. Receive the signal of color bar.
2. Connect 0.02uF capacitor between TP10 to ground.
3. Connect 100K ohm resistor between TP12 to ground.
   (Picutre is moving up or down, rolling)
4. Set VR606 to center.
5. Adjust TC701 until the picture stops rolling.
6. Reconnect capacitor and resistor.

COLOR LEVEL ADJUSTMENT

1. Receive the signal of color bar.
2. Connect oscilloscope to No.26 pin of IC603.
3. Set auto switch (SW601) to on.
4. Adjust color level to 75% of Y level with VR608.

HUE DELAY ADJUSTMENT

1. Receive the signal of color bar.
2. Auto switch (SW601) to on.
3. Adjust to original color with VR603 (HUE), VR607, T605,T606 (DELAY).

HOLD DOWN CIRCUIT

The higher high voltage is raised, the more the voltage of No.4 pin (supply for CRT heater) of high voltage transformer and the voltage of No.4 of Integrated Circuit (IC701) are increased at the same time. The voltage is rectified by D703 and smoothed by R728 and C719. Now when high voltage reaches to the criterion of the voltage, D702 can be breakdown because of being more than zener voltage. And then the current flow into No.3 pin of IC701, and horizontal oscillator shall be stopped. Accordingly, horizontal output will be nothing.
Hold down circuit is operated with the standard high voltage of 12K volts.

+B ADJUSTMENT

The +10.8V adjustment control (VR502), located on PCB4, is adjust at the factory. However, should readjusted be required, proceed as follows:

1. Connect one red lead of power supply to emitter of Q502, black lead to chassis ground. Adjust its output control to produce 15V.
2. Connect positive lead of voltmeter to collector of Q502, negative lead to chassis ground.
3. Adjust VR502 to obtain a 10.8V reading.
4. Set power supply output control to produce 10V from 15V.
5. Adjust VR501 to obtain a 9V reading.

CAUTION: To insure proper operation and circuit reliability, do not exceed +10.8V.

VERTICAL SIZE AND LINEARITY

The vertical linearity control (R736) primarily affects the top of the raster while the vertical size control (VR702) primarily affects the bottom of the raster. However, there is some interaction between these two controls. With receiver operating at 220V AC line, vertical centering properly positioned and brightness and contrast controls adjusted for normal picture, alternately adjust vertical linearity and vertical size controls to obrain a linear picture with one-half inch overscan at top and bottom.

COLOR PURITY ADJUSTMENT

The receiver must have been operating 10 minutes prior to this procedure and the faceplate of the CRT must be at room temperature. The following procedure is recommended while using a Dot/Bar Generator.

1. Check for correct location of all neck components. (Refer to Figure 2.)
2. Rough-in the static convergence at the center of the CRT, as explained in the static convergence procedure.
3. Rotate the contrast control to maximum CCW position and rotate brightness control as for CW as possible without causing the picture to "bloom".
4. Rotate the red bias (VR908) and blue bias (VR903) controls to maximum CCW position. Rotate the green bias control (VR902) sufficiently in a CW direction to produce a green raster.
5. Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
6. Begin the following adjustment with the tabs on the round purity magnet rings set together, slowly separate the two tabs while at the same time rotating them to adjust for a uniform green stripe at the center of the CRT screen.
7. Carefully slide the deflection yoke forward to achieve green purity (uniform green screen).

NOTE: Center purity was obtained by adjusting the tabs on the round purity magnet rings, outer edge purity was obtained by sliding the deflection yoke forward.

8. Check for red and blue field purity by reducing the output of the green bias control and alternately increasing output of red and blue bias controls and touch up adjustments, if required.
9. Tighten deflection yoke clamp screw.

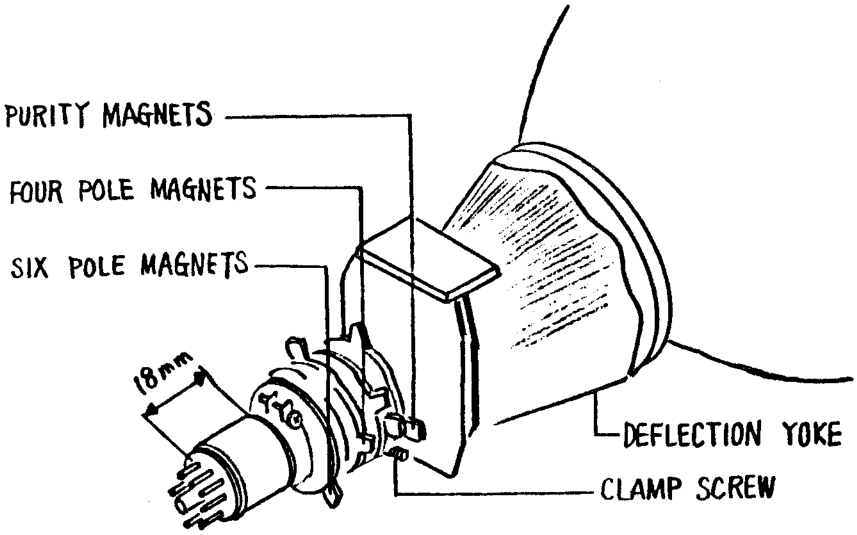


Figure 2. Picture Tube Neck Component Location

BLACK AND WHITE TRACKING

The purpose of this procedure is to adjust the biases applied to the picture tube to obtain good black and white picture reproduction at all brightness levels while, at the same time achieving maximum useable brightness. Proper RF AGC control adjustment have been verified prior to performing this procedure.

1. With antenna connected to the receiver, tune in picture on a strong received channel. Depress Auto Knob to OFF position. Rotate the color control to maximum CCW position and misadjust the tuning control so that the receiver will not produce a color picture while the following adjustment are being performed.
2. Rotate the red and blue drive control fully CW and then back CCW center of their rotation ranges.
3. Rotate the green, red and blue bias controls to the full CCW end of their rotation.
4. Set normal-service switch (SW702) to service position.
5. Rotate the screen control (VR901) to the full CCW end of its rotation. Then, rotate it CW until a dim line of one pronounced color (green, red or blue) is obtained.
6. The other two color bias controls must be rotated CW until a dim white line is obtained.
7. Set normal-service switch (SW702) to normal position.
8. If required, touch-up adjustment of the red and blue drive controls to produce a uniform monochrome picture.
9. Rotate the brightness and contrast controls fully CCW.
10. Rotate the brightness control CW until a dim raster is obtained.
11. If the screen does not display good white uniformity, step 2 through 10 this procedure must be repeated.

STATIC CONVERGENCE ADJUSTMENT

(Refer to Figure 2 & 3)

IMPORTANT: Before proceeding, check location of the purity/convergence magnet assembly on the neck of the CRT as shown in Figure 2. The rear edge of this assembly must be positioned 18mm from the tip of the CRT base. If not properly positioned, convergence adjustment may be difficult, it not impossible.

1. Apply dot or crosshatch pattern from Dot/Bar Generator to receiver. Reduce setting of brightness and/or contrast controls to eliminate any blooming in pattern.
2. Ratate green bias control fully CCW.
3. Observe the blue and red pattern now appering on the CRT screen. Locate the 4 pole magnet rings and separate their adjusting tabs approximately the width of one tab.
4. Rotate this pair of magnet rings as a unit (do not change spacing between tabs) to minimize the separation between the blue and red dots (lines).
5. If the blue and red dots (lines) are not completely converget at this paints, readjust the spacing between the two tabs to complete convergence of the blue and red dots (lines), thus producing magenta dots (lines).
6. If necessary, repeat steps 3,4 and 5 until proper convergence is achieved.
7. Rotate green bias control CW until proper green level is restored and observe the magenta (B/R) and green pattern now appearing on CRT screen.
8. Locate the 6 pole magnet rings and separate their adjusting tabs approximately the width of one tab.
9. Rotate this pair of magnet rings a unit (do not change spacing between tabs) to minimize the separation between the magenta (B/R) and green dots (lines).
10. If the magenta and green dots (lines) are not completely converged at this point, readjust the spacing between the two tabs to complete convergence of the magenta and green dots (lines).
11. If necessary, repeat steps 8, 9 and 10 until proper convergence is obtained. To prevent accidental misadjustment of the magnets, apply a stripe of paint across all six rings and on to the neck of the CRT.

DYNAMIC CONVERGENCE

Dynamic convergence (convergence of the three color fields at the edges of the CRT screen) is accomplished by proper insertion and positioning of three rubber wedges between the edge of the deflection yoke and the funnel of the CRT.

This accomplished in the following manner.

1. Switch receiver ON and allow it to warm up for 10 minutes.
2. Apply crosshach pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
3. For the misconvergence shown in Figure 4 (A), tilt down the deflection yoke and insert the wedge A between deflection yoke and CRT.
4. For the misconvergence shown in Figure 4 (B), tilt up the deflection yoke and insert the wedge B between deflection yoke and CRT.
5. For the misconvergence shown in Figure 4 (C), tilt left side of the deflection yoke and slightly insert the wedge C between deflection yoke and CRT. Then, deeply insert the wedges A and B between deflection yoke and CRT.
6. For the misconvergence shown in Figure 4 (D), tilt right side of the deflection yoke and deeply insert the wedge C between deflection yoke and CRT. Then, slightly insert and/or extract the wedges A and B between deflection yoke and CRT.
7. Alternately change spacing between, and depth of inserting of, the three wedges until proper dynamic convergence is obtained.
8. Use a strong adhesive tape to firmly secure each of the three rubber wedges to the funnel of the CRT.

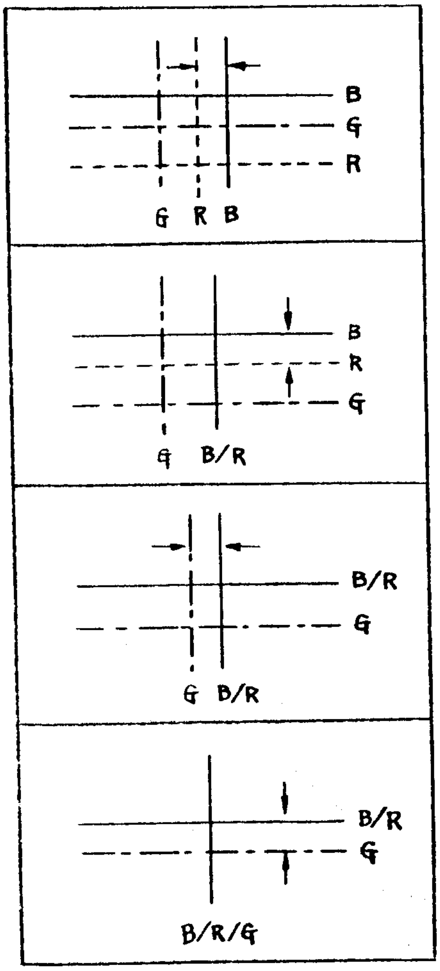

B
G
R
G R B
B
R
G
G B/R
B/R
G
G B/R
B/R
G
B/R/G

Figure 3. Static Convergence Adjustment

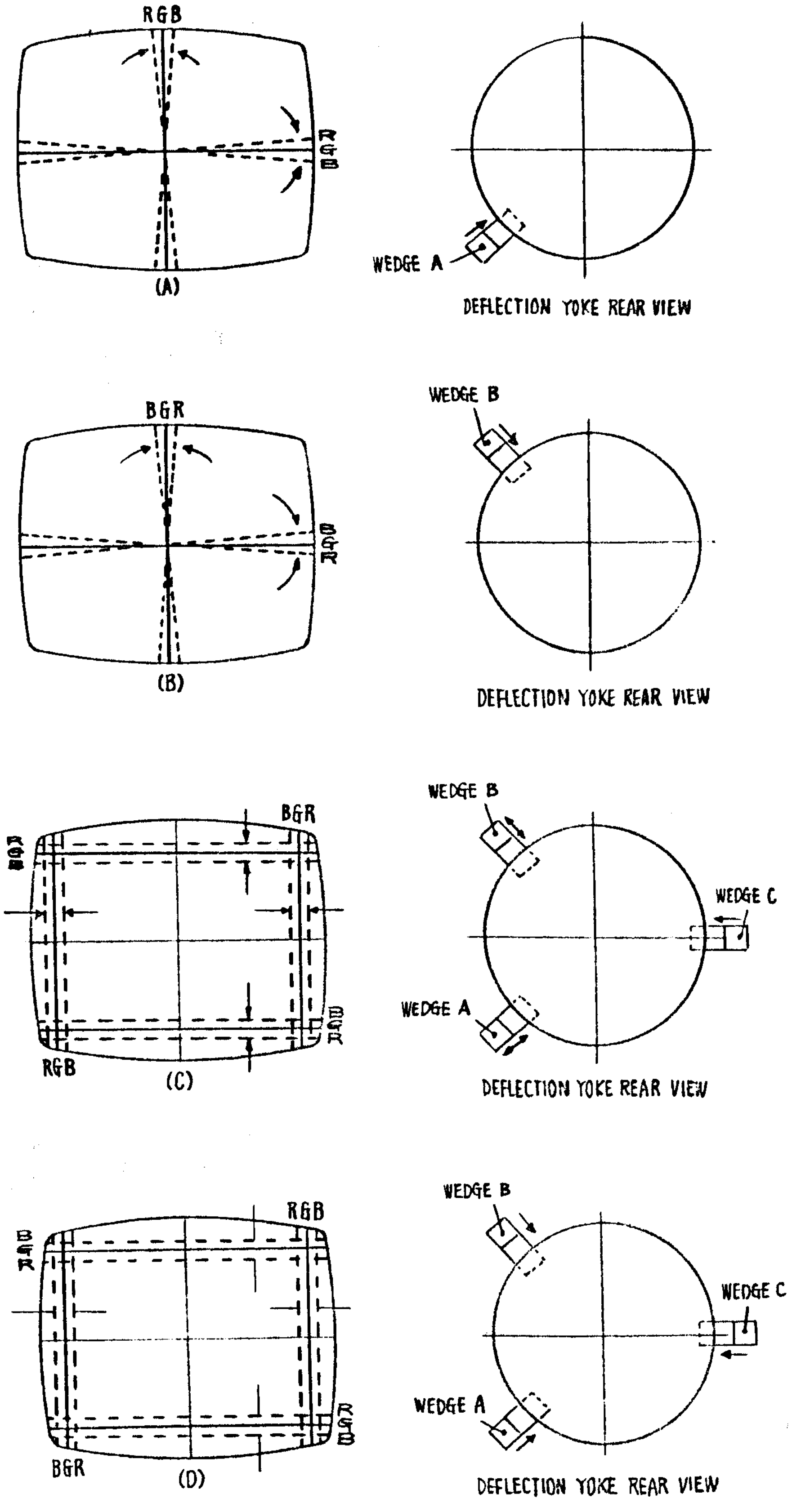

RGB
R
G
B
(A)
WEDGE A
DEFLECTION YOKE REAR VIEW
BGR
B
G
R
(B)
WEDGE B
DEFLECTION YOKE REAR VIEW
BGR
BGR
RGB
BGR
(C)
WEDGE B
WEDGE C
WEDGE A
DEFLECTION YOKE REAR VIEW
RGB
BGR
RGB
BGR
(D)
WEDGE B
WEDGE C
WEDGE A
DEFLECTION YOKE REAR VIEW

Figure 4. Dynamic Convergence Adjustment

DEO IF AND AFC ALIGNMENT

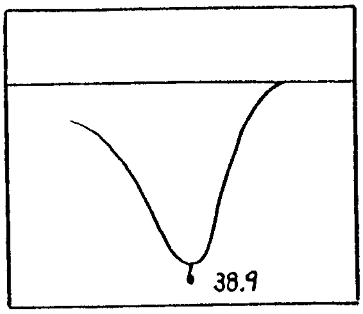
TEST EQUIPMENT CONNECTION

GENERAL ... Set channel selector to highest unused channel, priferably channel 12 or channel 11.

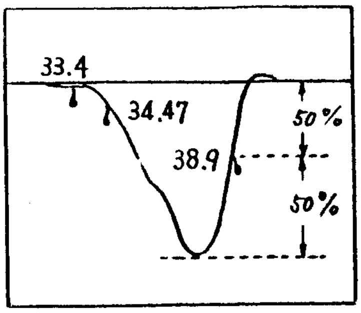
OSCILLOSCOPE ... Set AC-DC switch to AC.

SWEEP-MARKER GENERATOR ... Connect H SCOPE and V SCOPE output cable from SWEEP-MARKER GENERATOR to H and V input connectors on OSCILLOSCOPE, connect red lead of SWEEP-MARKER OUTPUT cable to test point TP1 on PCB2; connect black lead to chassis ground. Connect yellow lead of SWEEP-MARKER FROM TP cable to TP2; black lead to chassis ground.

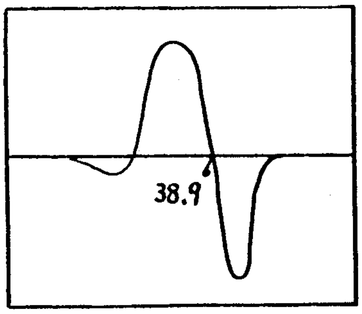
STEP	ADJUSTMENT	COMPONENT	PROCEDURE
1	Connect 100K ohm volome between TP3,TP+B to ground. Supply DC 8.0V to TP3.		
2	38.9MHz Trap	T602	Adjust T602 to obtain maximum amplitude of response curve at 38.9MHz. (Refer to Response Curve A.)
3	Connect lead of SWEEP-MARKER GENERATOR OUTPUT cable to TP4 from TP1.		
4	33.4MHz to 40.4MHz	IFT on TV tuner	Alternately adjust IFT on TV tuner to obtain maximum amplitude of response curve. (Refer to Response Curve B.)
5	Reconnect 100K ohm volume between TP3,TP+B and ground.		
6	Connect red lead of SWEEP-MARKER GENERATOR OUTPUT cable to TP7 from TP4. Connect yellow lead of SWEEP-MARKER FROM TP cable to TP8 from TP2. Set AFC switch (SW401) to on.		
7	38.9MHz AFC	T603	Adjust core to place 38.9MHz marker at zero reference line on response curve. (Refer to Response Curve C.)



Response Curve A



Response Curve B



Response Curve C

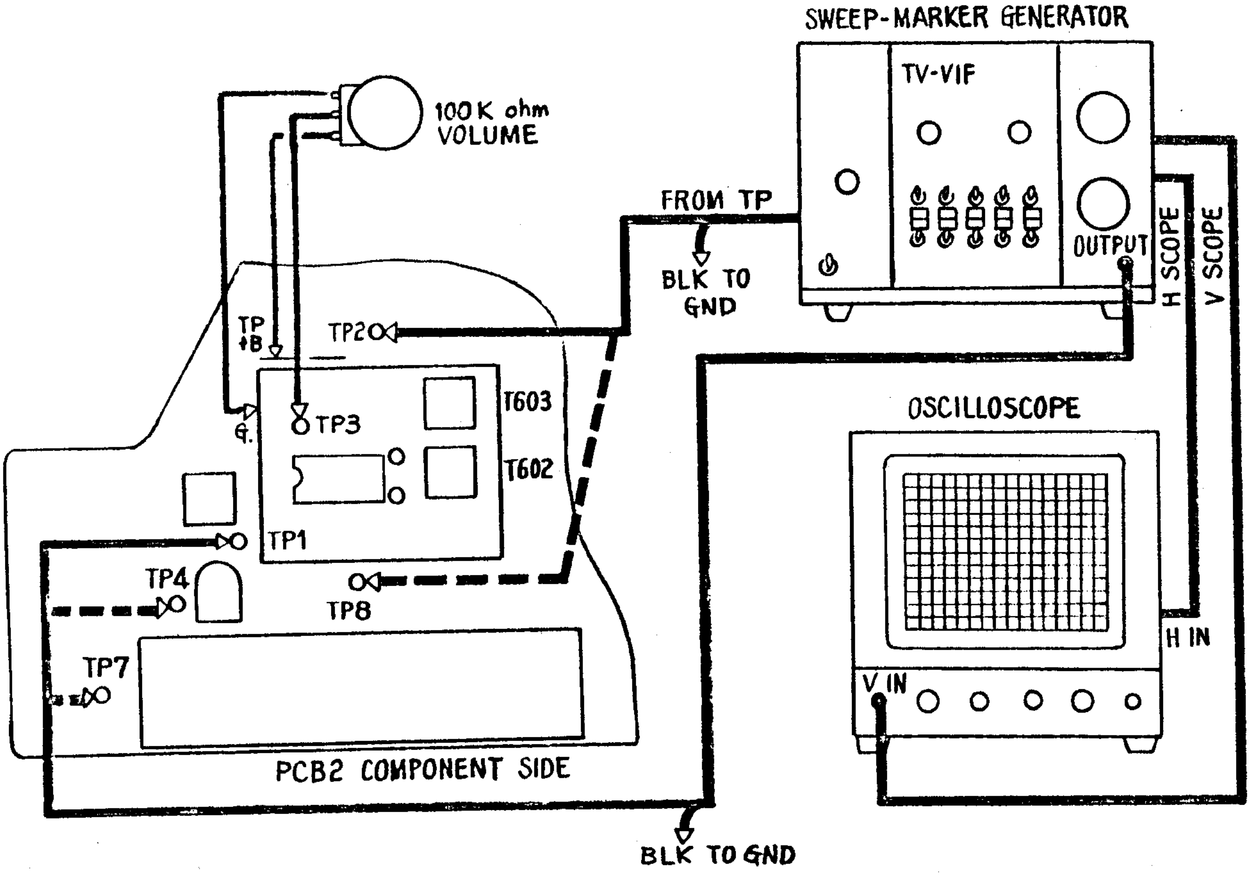

SWEEP-MARKER GENERATOR
TV-VIF
OUTPUT
H SCOPE
V SCOPE
100K ohm
VOLUME
FROM TP
BLK TO
GND
TP
+B
TP2
G.
TP3
T603
T602
TP1
TP4
TP8
TP7
PCB2 COMPONENT SIDE
OSCILLOSCOPE
H IN
V IN
BLK TO GND

Figure 5 Video IF and AFC Sweep Alignment

SOUND IF ALIGNMENT

TEST EQUIPMENT CONNECTION

SWEEP-MARKER GENERATOR ... Connect H SCOPE and V SCOPE output cable from SWEEP-MARKER GENERATOR to H and V input connectors on OSCILLOSCOPE, connect red lead of SWEEP-MARKER OUTPUT cable to TP9 (jumper wire); connect black lead to chassis ground. Connect yellow lead of SWEEP-MARKER FROM TP cable to TP10; black lead to chassis ground.

STEP	ADJUSTMENT	COMPONENT	PROCEDURE
1	5.5MHz	T604	Adjust core to place 5.5MHz marker at zero reference line on response cruve. (Refer to Response Curve D.)

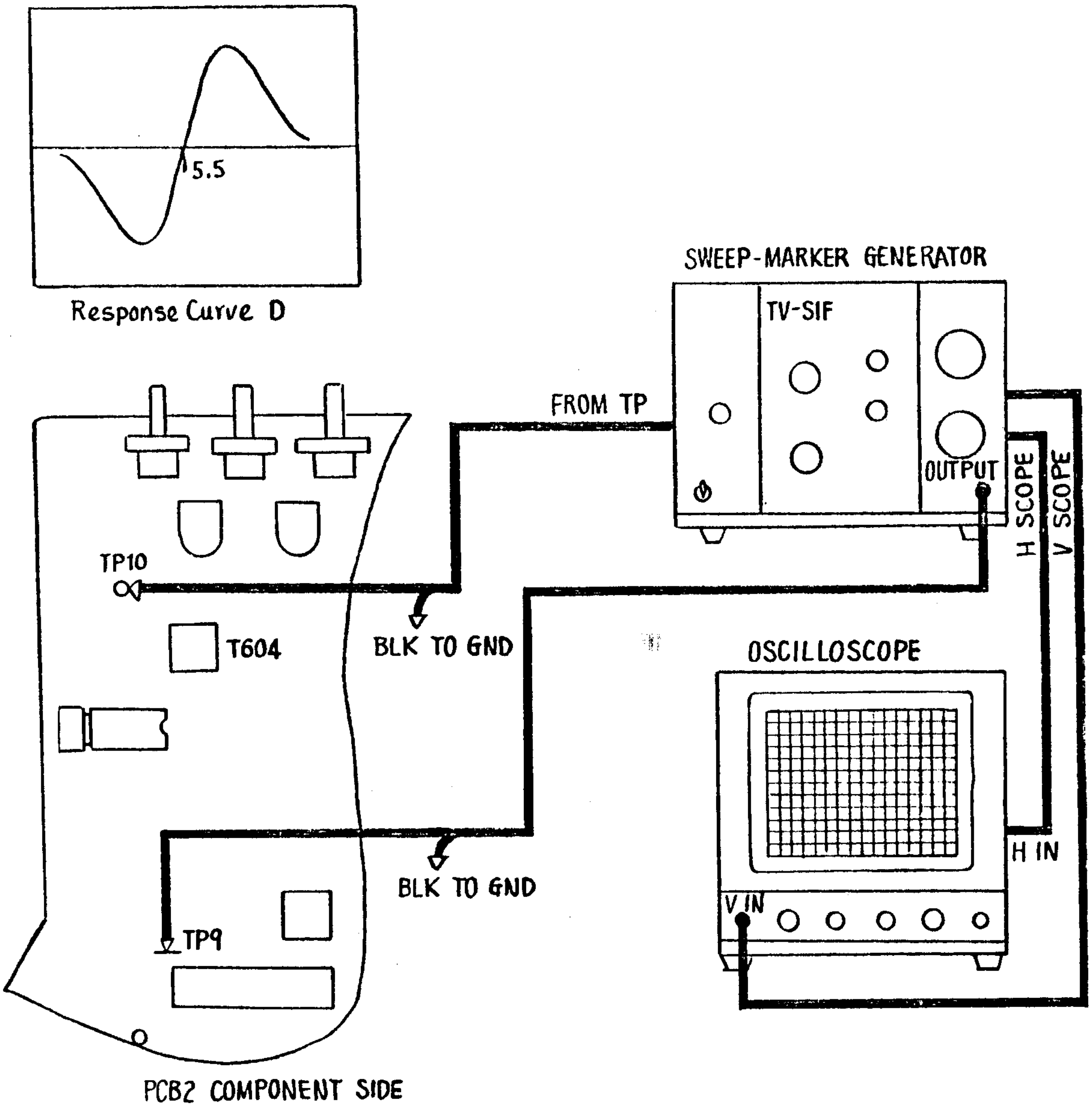

5.5
Response Curve D
SWEEP-MARKER GENERATOR
TV-SIF
FROM TP
OUTPUT
H SCOPE
V SCOPE
TP10
T604
BLK TO GND
BLK TO GND
TP9
OSCILLOSCOPE
H IN
V IN
PCB2 COMPONENT SIDE

Figure 6 Sound IF Alignment

RADIO IF COVERAGE TRACKING-ADJUSTMENT

Needed Equipment

a) Vacuum Tube Volt Meter
b) AM/FM band standard signal generator & loop antenna
c) AM/FM band intermediate frequency generating scope
d) Oscilloscope
e) Non-metallic (such as ebonite) aligning tool

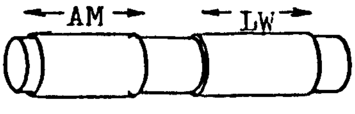
AM/FM Tuner section

a) Setting of condition	Volume: maximum position
b) Level of input signal	As low as possible
c) Reference modulation	30%, 400Hz Modulation Frequency
d) Reference audio output	50mW (0.28V at 16 ohm)
e) Refer to PCB diagram	PCB1 TU-092
f) Low sides of signal source and output indicators are connected to earth-line nearest point of high-side-connections, unless otherwise noted	
g) (*) marked output	Standard modulated output
h) (※) marked coil	Adjust by compressing or expanding
i) Remember to lock screws, etc	with paint after adjusting them

Item		Step	Signal Source Connection	Set Signal to	Output Indicator Connection	Set Radio Dial to	Adjust	Adjust for
IFT	455 KHz	1	FUNCTION is set to "AM" position.					
		2	AM IF GS Output to TC4	Sweep Centered 455KHz	IF GS Input to C140	Maximum Frequency	T106	Maximum
		3					T107	
		4	Repeat step 2 - 3 a few times.					
	10.7 MHz	1	FUNCTION is set to "FM" position.					
		2	FM IF GS Output to L103	Sweep ±1MHz Centered 10.7MHz	IF GS Input to C140	Maximum Frequency	T101	Maximum Symmetical "S" Centered 10.7MHz
		3					T102	
		4					T103	
		5	Repeat step 2 - 4 a few times.					

Item		Step	Signal Source Connection	Set Signal to	Output Indicator Connection	Set Radio Dial to	Adjust	Adjust for
AM	band	1	FUNCTION is set to "AM" position.					
		2	AM IFGS ⁎output to loop antenna	515KHz	VTVM/oscilloscope w/dummy load input to J601	minimum frequency	T104	maximum
		3		1650KHz		maximum frequency	TC4	
		4	Repeat step 2 - 3 a few times to obtain the neened AM band width.					
	tracking	1	"	600KHz	"	600KHz tune on signal	L105 cf.Fig1	maximum
		2		1400KHz		1400KHz tune on signal	TC3	
		3	Repeat step 1 - 2 a few times to minimize the tracking error.					
FM	band	1	FUNCTION is set to "FM" position.					
		2	FM SSG ⁎output to Telescopic Antenna	87.5MHz	"	minimum frequency	L104	maximum
		3		108MHz		maximum frequency	TC2	
		4	Repeat step 2 - 3 a few times to obtain the needed FM band width.					
	tracking	1	"	90MHz	"	90MHz tune on signal	※ L102	maximum
		2		98MHz		98MHz tune on signal		
		3		106MHz		106MHz tune on signal	TC1	
		4	Repeat step 1 - 3 a few times to minimize the tracking error.					
LW	band	1	FUNCTION is set to "LW" position.					
		2	AM SSG ⁎output to loop antenna	142KHz	"	minimum frequency	T105	maximum
		3		265KHz		maximum frequency	TC102	
		4	Repeat step 2 - 3 a few times to obtain the needed LW band width.					
	tracking	1	"	142KHz	"	142KHz tune on signal	L105 cf.Fig1	maximum
		2		265KHz		265KHz tune on signal	TC101	
		3	Repeat step 1 - 2 a few times to monimize the tracking error.					

Fig1



Adjust by sliding coil-bobbin
(Use non-metallic alignment tool)

L105 (Bar Antenna)

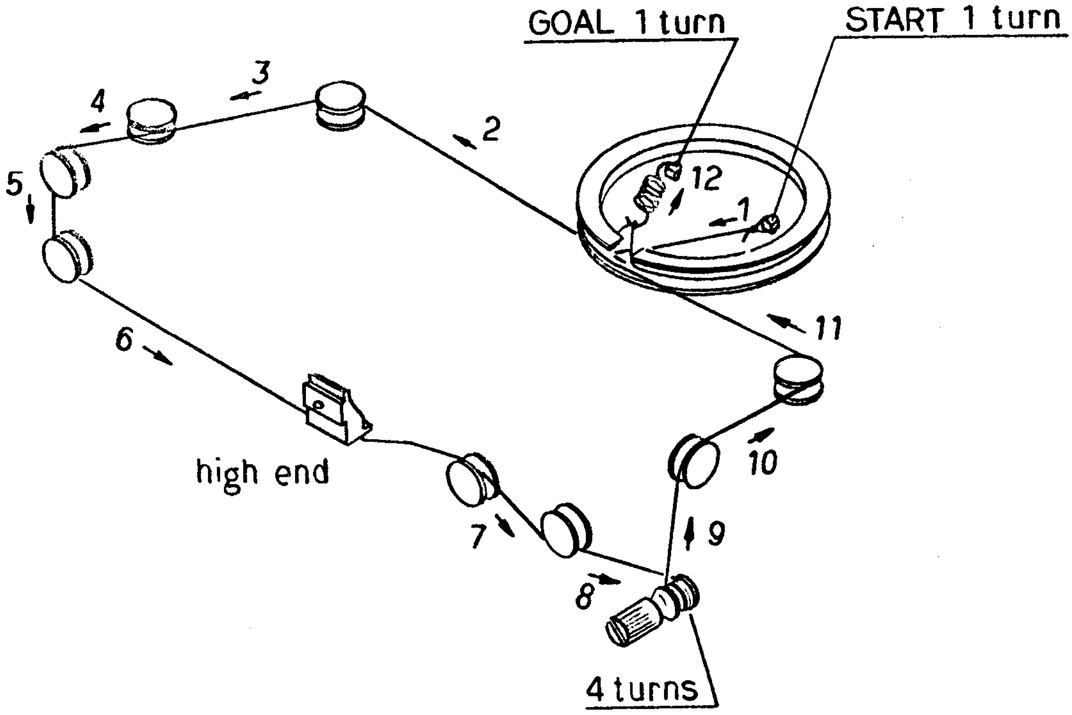
SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
141	7800-5317	Mounting Angle, Focus Block		1
142	7300-2146	Knob, V-H,H-H,Color,Contrast,Bright		5
143	7800-5297	Holder, Door		2
144	7100-2376	Door		1
145	7300-2112	Handle		1
	7300-2120	Cover, Handle		1
146	1200-0310	Telescopic Antenna		1
147	7000-2035	Cabinet, Top		1
	7200-5844	Model Number Plate		1
	7800-5412	Cushion, Handle		2
148	7800-5318	Mounting Angle, Telescopic Antenna		1
201	8103-1204	Screw, Bind Head	2x4	2
202	8103-1J05	"	2.6x5	2
203	8103-1304	"	3x4	3
204	8103-1306	"	3x6	9
205	8103-1308	"	3x8	3
206	8103-1408	"	4x8	2
207	8112-1J06	Screw, Tapping B	2.6x6	2
208	8134-1310	" WH8ø	3x10	7
209	8112-1318	"	3x18	2
210	8112-1410	"	4x10	7
211	8112-1416	"	4x16	4
212	8112-1420	"	4x20	4
213	8110-5304	Screw, Plus-tight	3x4	1
214	8110-5306	"	3x6	4
215	8110-5308	"	3x8	10
216	8109-5306	Screw, Tap-tight	3x6	4
217	8107-1J04	Screw, Flat Head	2.6x4	2
218	8107-1308	"	3x8	4
219	8114-5310	Screw, Sems B	3x10	1
220	8114-5408	"	4x8	2
221	8115-5J06	Screw, Sems C	2.6x6	1
222	8130-9306	Screw, Plastic	3x6	1
223	8147-1300	Lug Terminal	3ø	1
224	8147-1400	"	4ø	1
225	8147-1400	"	D4	1
226	8140-1300	Plain Washer	3ø	2
227	8140-1ZZ0	"	5.6x16x1.0t	2

CABINET PARTS LIST FOR MODEL COLOR 8509

SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
101	7300-2137	Knob, Selector Switch		1
102	7300-2136	Knob, Tuning Control		1
103	7100-2377	Cabinet, Front		1
	7200-5799	Designation Plate, Speaker Grille		1
	7200-5845	Designation Plate, Channel		1
	7200-5470	Designation Plate, Color		1
	7500-0444	Net, Speaker		1
	7600-2271	Dial Scale Plate		1
	7000-2014	Cover, Picture Tube		1
104	-	Locking Nut, Cabinet,Front,ToP,Bottom		7
105	7300-2116	Button, Power Switch		1
106	7500-0222	Metal, Speaker Mounting		2
107	7300-2114	Knob, Volume Control		1
108	7300-2123	Button, Auto Switch		1
109	7300-2115	Button, Channel Selector		6
110	7800-5296	Holder, LED		1
111	7800-5365	Mounting Angle, Sensor PCB		1
112	7500-0148	Bushing, Mounting Angle, Sensor PCB		1
113	7300-2156	Button, AFC Switch		1
114	7800-5411	Cushion, CRT PCB		1
115	1206-0021	Cord Clamp	4ø	4
116	7800-4671	Ground Spring, CRT		1
117	7600-2258	Guiding Angle, Radio		1
	7980-5006	Pulley	No.7015	8
	8140-1L75	Plain Washer	3.2x7x0.5t	8
118	7600-2247	Pointer		1
119	-	Holder, LED, Pointer		1
120	1206-0021	Cord Clamp	3ø	2
121	7600-2297	Spring, Dial Cord String		1
122	7600-0837	Dial Drum		1
123	7800-4692	Holder, Bar Antenna		1
124	7600-1055	Shaft, Tuning		1
125	7800-5319	Mounting Angle, Jack Plate, Antenna		1
126	7700-0835	Jack Plate, Antenna		1
127	7300-1547	Knob, Degauss Switch		1
128	7800-4558	Cushion, Knob, Degauss Switch		1
129	7400-0488	Metal, Charge Connector Mounting		1
130	7000-2012	Lid, Battery Compartment		1
131	7000-2034	Cabinet, Bottom		1
	7700-0503	Battery Contact Plate, Positive		4
	7700-0862	Battery Spring, Negative		4
	7200-5720	Rechargeable Battery Sheet		1
	8147-1300	Lug Terminal	3ø	4
132	1201-5006	Nut, Nylon	No.280	2
133	7700-0837	Mounting Angle, Power Transformer		1
	7200-3239	Fuse Sheet	2A"T"	1
134	1204-0011	Fuse Holder		1
135	7800-3301	Metal, Power Transformer Mounting		2
136	7700-0558	Shield Plate, Power Transformer		1
137	7800-5314	Heat Sink, Power		1
138	7800-5336	Shield Plate, Video IF		2
139	7800-5335	Shield Plate, Video IF		1
140	7800-5216	Heat Sink, Horizontal		1

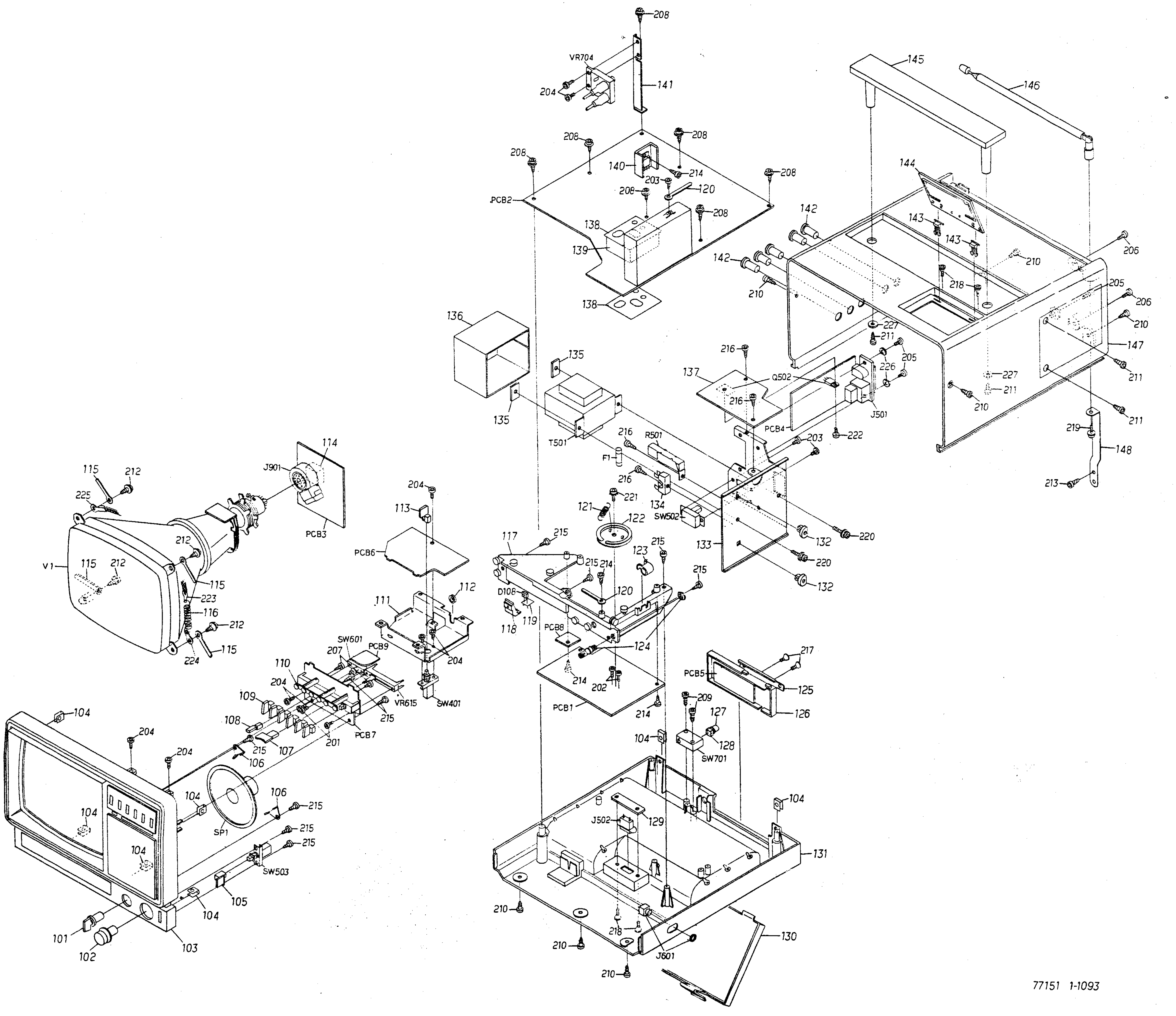
SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
-	7800-4514	Shield Plate, IC			1
-	-	Test Pin			7
-	-	Band, Cord Clamp			2
-	7200-5986	Decoration Film			1
-	7950-1870	Instruction Booklet			1
-	7900-1782	Package, Right			1
-	7900-1783	Package, Left			1
-	7700-0452	Battery Tube			3
-	7900-1825	Gift Box			1
-	0830-0818	Connector	G-318	6P	1
-	0830-0819	"	G-319	10P	1
-	0830-0820	"	G-320	4P	1
-	0830-0821	"	G-321	5P	1
-	0830-0822	"	G-322	6P	1
-	0830-0823	"	G-323	2P	1
-	0830-0824	"	G-324	5P	1
-	0830-0825	"	G-325	1P	1
-	0830-0828	"	G-328		1
-	0830-0829	"	G-329		1
-	0830-0603	"	G-103B		1
-	0831-0183	"	171826-3	3P	1
-	0831-0186	"	171826-6	6P	1
-	0831-0164	"	171825-4	4P	1
-	0831-0165	"	171825-5	5P	2
-	0831-0166	"	171825-6	6P	1
-	0831-0170	"	171825-10	10P	1
-	0831-0162	"	171825-2		1
-	0829-0002	"	MD-019		1

RADIO DIAL CORD STRING


GOAL 1 turn
START 1 turn
1
2
3
4
5
6
7
8
9
10
11
12
high end
4 turns

DIAL CORD... 900mm, 0.3∅, black

77151
4-1206


VR704
PCB2
T501
Q502
J501
PCB4
R501
F1
SW502
J901
PCB3
V1
PCB6
SW401
D106
PCB8
PCB1
PCB5
SW701
SW601
PCB9
VR615
PCB7
SP1
SW503
J502
J601

77151 1-1093

PARTS LIST FOR MODEL COLOR 8509

SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
		- RESISTORS - All Resistors are $\frac{1}{4}$W, Carbon-type & Horizontal-type, unless otherwise noted.			
R101	T167-4710	470	ohm		1
R102	T167-1050	1M	"		1
R103,110,113	T167-4700	47	"		3
R104	T167-2220	2.2K	"		1
R105	T167-4740	470K	"		1
R106	T167-5600	56	"		1
R107	T167-1510	150	"		1
R108	T167-5610	560	"		1
R111	T167-1010	100	"		1
R112	0166-1000	10	"	1/8W	1
R114	0166-1510	150	"	"	1
R115	T167-1220	1.2K	"		1
R116,117	0166-1220	1.2K	"	1/8W	2
R118,119,128	0166-1030	10K	"	"	3
R120	0166-1810	180	"	"	1
R121	T167-3310	330	"		1
R122	0166-1540	150K	"	1/8W	1
R123,138	T167-1020	1K	"		2
R124	T167-1030	10K	"		1
R125	0166-3920	3.9K	"	1/8W	1
R126	0166-5630	56K	"	"	1
R127	0166-1010	100	"	"	1
R129	0166-5610	560	"	"	1
R130,135	0166-6820	6.8K	"	"	2
R131	0108-1810	180	"	1/2W	1
R132	0166-3910	390	"	1/8W	1
R133	0166-1240	120K	"	"	1
R134	0166-1530	15K	"	"	1
R136	0166-6810	680	"	"	1
R137	0166-4720	4.7K	"	"	1
R401,404,408	0166-1030	10K	"	"	3
R402,405,409	0166-1020	1K	"	"	3
R403,410	T162-2280	2.2	"	Vertical	2
R406	0166-8230	82K	"	1/8W	1
R407	0166-6830	68K	"	"	1
R411	0166-1520	1.5K	"	"	1
R412	0166-2220	2.2K	"	"	1
R501	0144-1200	12	"	Cement 10W	1
R502	T167-2720	2.7K	"		1
R503,507	T167-3920	3.9K	"		2
R504	0121-1045	100	"	Metal 2W	1
R505	T167-1810	180	"		1
R506	T167-8210	820	"		1
R508	T167-4720	4.7K	"		1
R509	0108-3900	39	"	1/2W	1

SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
R601,650	T167-1010	100	ohm		2
R602	T167-5620	5.6K	"		1
R603,623,624, 633,657,685)	T167-1020	1K	"		6
R605	0171-2210	220	"	Fuse 1/4W	1
R606,616,618,625	T167-4710	470	"		4
R607	T167-2700	27	"		1
R608	T167-8210	820	"		1
R609	T167-3930	39K	"		1
R610	T167-1040	100K	"		1
R611	T167-2210	220	"		1
R612,613,627	T167-1220	1.2K	"		3
R614,693	T167-2720	2.7K	"		2
R615	T167-8240	820K	"		1
R617,649	T167-2220	2.2K	"		2
R619,636	0166-5610	560	"	1/8W.	2
R620,651	0166-1010	100	"	"	2
R621	0166-1520	1.5K	"	"	1
R622	T167-3310	330	"		1
R626	T167-5600	56	"		1
R628,690,691,692	T167-2710	270	"		4
R630	T167-8280	8.2	"		1
R631	0171-1510	150	"	Fuse 1/4W	1
R632	0170-3300	33	"	" 1/2W	1
R634,697	T167-1030	10K	"		2
R640,641	T167-2730	27K	"		2
R642,695	0166-1020	1K	"	1/8W	2
R652	T167-3910	390	"		1
R658,694	T167-1520	1.5K	"		2
R659	0166-1830	18K	"	1/8W	1
R660	T167-1840	180K	"		1
R661	0166-6810	680	"	1/8W	1
R662	0166-2720	2.7K	"	"	1
R663,672,684	0166-2730	27K	"	"	3
R664,683	0166-5630	56K	"	"	2
R665	0170-5680	5.6	"	1/4W Fuse	1
R666,682	0166-2220	2.2K	"	1/8W	2
R667	0166-3910	390	"	"	1
R668	T167-3340	330K	"		1
R669,670,686	0166-4720	4.7K	"	1/8W	3
R671	T167-2240	220K	"		1
R673,675	T167-3330	33K	"		2
R674	T167-4730	47K	"		1
R676,679,681	T167-5630	56K	"		3
R678,680	T167-6830	68K	"		2
R687,688,689	T167-3320	3.3K	"		3

SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
R701	0171-2200	22	ohm	1/4W Fuse	1
R702	T167-8220	8.2K	"		1
R704	0166-3910	390	"	1/8W	1
R705	0166-1240	120K	"	"	1
R706	0166-2220	2.2K	"	"	1
R707,723	0166-1230	12K	"	"	2
R708	0166-2240	220K	"	"	1
R711	0166-1220	1.2K	"	"	1
R712,729	0166-2230	22K	"	"	2
R713	0166-1030	10K	"	"	1
R714	0166-5620	5.6K	"	"	1
R715	0120-2710	270	"	Metal 1W	1
R716	T167-2710	270	"		1
R717,732	T167-5600	56	"		2
R718,719	0108-1080	1	"	1/2W	2
R720	0108-3310	330	"	"	1
R721	T167-4720	4.7K	"		1
R722,742	T167-5630	56K	"		2
R724	0166-1520	1.5K	"	1/8W	1
R728,750	T167-1530	15K	"		2
R730,743	0166-6820	6.8K	"	1/8W	2
R733	T167-1830	18K	"		1
R734	0108-4700	47	"	1/2W	1
R735,749	T167-1040	100K	"		2
R736	T167-1830	18K	"		1
R737	0166-1510	150	"	1/8W	1
R738	T167-6810	680	"		1
R739	0108-2280	2.2	"	1/2W	1
R746	T167-5630	56K	"		1
R747	T167-1020	1K	"		1
R901	T167-4740	470K	"		1
R902	0108-1050	1M	"	1/2W	1
R903,904,905	0108-2720	2.7K	"	"	3
R906,907,908	0108-1230	12K	"	"	3
R909	T167-3310	330	"		1
R910,911,912	T167-1220	1.2K	"		3
R913,914	T167-1510	150	"		2

- CAPACITORS -

C101	0330-1500	Ceramic	15pF		1
C102,119	0330-1020	"	0.001μF 50V		2
C103,110,113,116, 120,135,139,144)	0330-2230	"	0.022μF		8
C104	0334-2003	"	20pF	(N750)	1
C105	0330-3090	"	3pF		1
C106	0330-3310	"	330pF		1
C107	0330-3000	"	30pF		1
C108,112	0330-6090	"	6pF		2
C109,114	0332-4720	"	0.0047μF (YB)		2
C111	0334-1303	"	13pF	(N750)	1
C117,118	0330-5610	"	560pF		2
C123	0334-6093	"	6pF	(N750)	1

SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
C131	0330-9100	Ceramic	91pF		1
C132	0334-1603	"	16pF	(N750)	1
C145	0330-1030	"	0.01µF		1
C121	0313-4R70	Electrolytic	25V	4.7µF (T)	1
C127	0301-3300	"	10V	33µF	1
C134,142	0301-1000	"	10V	10µF	1
C138	0301-2210	"	10V	220µF	1
C140,143	0305-1090	"	50V	1µF	2
C141	0301-1010	"	10V	100µF	1
C122	0320-1070	Mylar	0.01uF		1
C136,137	0320-2270	"	0.022uF		2
C128	0370-2070	Semi-conductor	12V	0.2µF	1
C129	0351-3000	Stryoll	300pF	(J)	1
C130	0351-1200	"	120pF	(J)	1
C401,403	0305-2R20	Electrolytic	50V	2.2µF	2
C402	0302-1091	" (Non Poler)	16V	1µF	1
C501,502,503,504	0330-4730	Ceramic	0.047µF	50V	4
C509,510	0330-2230	"	0.022µF	50V	2
C505	0303-3320	Electrolytic	25V	3300µF	1
C506,507	0301-3310	"	10V	330µF	2
C508	0302-1010	"	16V	100µF	1
C601,609	0305-2R20	"	50V	2.2µF	2
C610	0305-R470	"	50V	0.47µF	1
C618,628,633	0302-2210	"	16V	220µF	3
C623,671	0302-1000	"	16V	10µF	2
C629,631	0302-1010	"	16V	100µF	2
C630,637,672, 673,677,678)	0305-1090	"	50V	1µF	6
C634	0302-4710	"	16V	470µF	1
C636	0302-4700	"	16V	47µF	1
C645	0302-2R21	" (Non Poler)	16V	2.2µF	1
C674	0302-2220	"	16V	2200µF	1
C603,604,605,606, 607,611,612,613, 614,615,626,642,) 655,656,659,660, 661,669	0330-1030	Ceramic	0.01µF		18
C608	0330-1020	"	0.001µF		1
C616,620	0334-1001	"	10pF	(N220)	2
C621,622	0330-2291	"	2.2pF		2
C625,675	0330-5600	"	56pF		2
C632,676	0330-4030	"	0.04µF		2

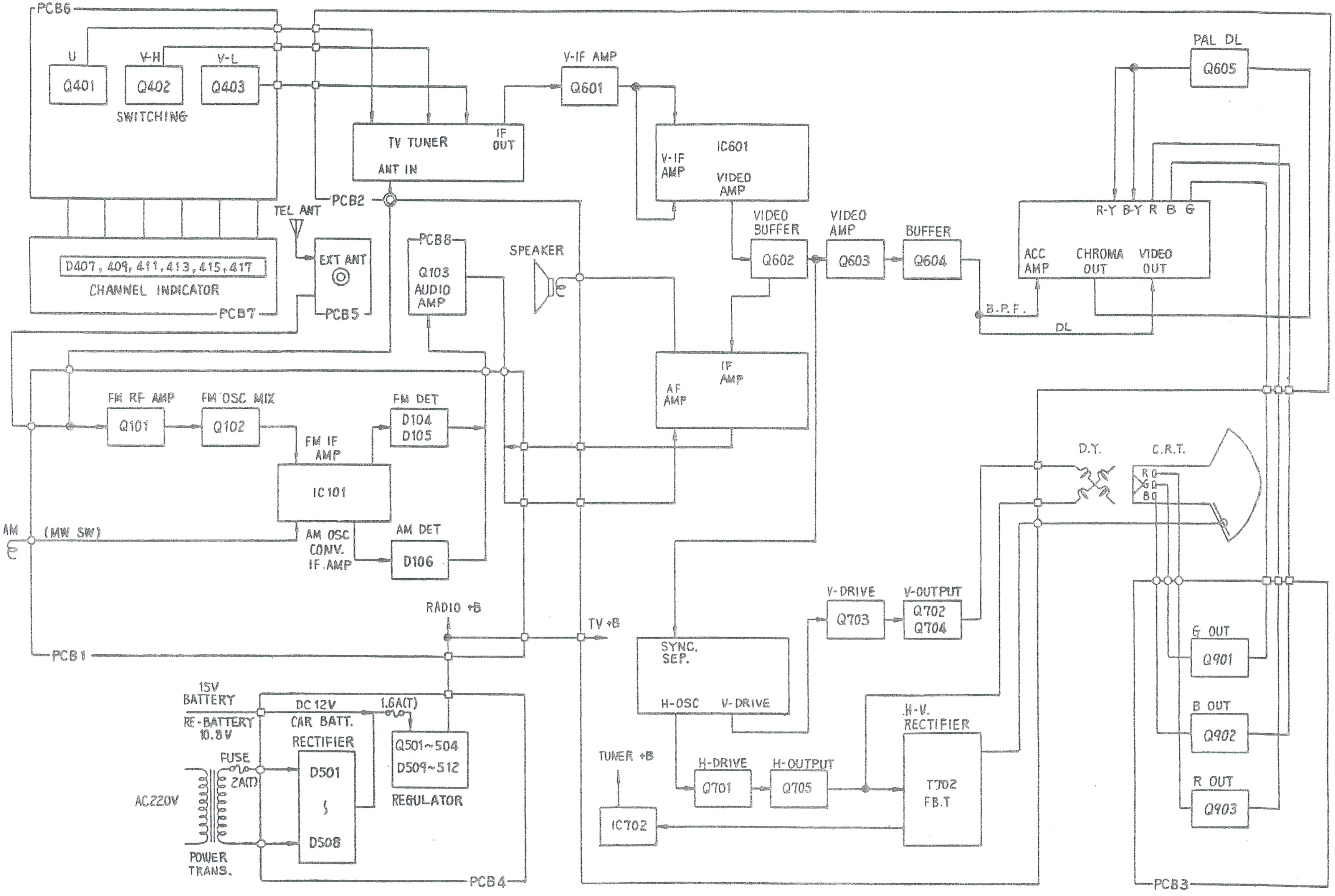
SYMBOL NO.	PART NO.	DESCRIPTION			Q'TY
C635,639,641, 644,646)	0330-2230	Ceramic	0.022µF		5
C640	0334-1201	"	12pF	(N220)	1
C643,670	0330-1010	"	100pF		2
C650	0334-1501	"	15pF	(N220)	1
C653	0334-4701	"	47pF	(N220)	1
C654	0334-2201	"	22pF	(N220)	1
C664	0330-6810	"	680pF		1
C627	0320-1080	Mylar	0.1µF		1
C638	0320-1870	"	0.018µF		1
C663	0320-1560	"	0.0015µF		1
C665	0320-4760	"	0.0047µF		1
C666	0362-1041	Tantalum Con.	16V	0.1µF	1
C668	0362-1051	"	16V	1µF	1
C667	0342-1080	Alumi Solid	16V	0.1µF	1
C702	0320-3370	Mylar	0.033µF		1
C703	0320-4770	"	0.047µF		1
C705	0320-1560	"	0.0015µF		1
C707	0320-5670	"	0.056µF		1
C708	0320-6870	"	0.068µF		1
C715	0320-1070	"	0.01µF		1
C723	0320-2770	"	0.027µF		1
C724	0320-4760	"	0.0047µF		1
C726	0320-8270	"	0.082µF		1
C704,714,732,742	0302-2210	Electrolytic	16V	220µF	4
C706,719	0303-4R70	"	25V	4.7µF	2
C710	0302-3300	"	16V	33µF	1
C713,720,731,734	0305-1090	"	50V	1µF	4
C727,733	0302-2220	"	16V	2200µF	2
C730,743	0302-1020	"	16V	1000µF	2
C735	0303-1001	" (Non Poler)	25V	10µF	1
C738	0308-4R70	"	160V	4.7µF	1
C739	0305-2R20	"	50V	2.2µF	1
C740	0308-2R20	" (Non Poler)	160V	2.2µF	1
C709	0362-1051	Tantalum Con.	16V	1µF	1
C725	0362-2251	"	16V	2.2µF	1
C711,712,721	0330-1020	Ceramic	0.001µF		3
C717	0330-1030	"	0.01µF	50V	1
C722	0330-1020	"	0.001µF	50V	1
C728	0330-1020	"	0.001µF	500V	1
C736	0330-5610	"	560pF	2KV	1
C737	0330-1030	"	0.01µF		1
C750	0330-1000	"	10pF	500V	1

SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
C716	-	Polypropylen	0.0022µF 50V	1
C718	0388-3360	"	0.0033µF 100V	1
C729	0383-5671	"	0.056µF 400V	1
C901	0330-2220	Ceramic	0.0022µF 2KV	1
C902,903,904	0330-1510	"	150pF	3
		- SEMICONDUCTORS -		
Q101	0020-0322	Transistor	2SC1674 (M)	1
Q102	0020-0321	"	2SC1674 (L)	1
Q103	0010-0191	"	2SC945 (P,Q)	1
Q401,402,403	0000-0140	"	2SA733 (P,Q)	3
Q501,503	0000-0150	"	2SA952 (L)	2
Q502	0010-0150	"	2SB553 (Y)	1
Q504	0020-0191	"	2SC945 (P,Q)	1
Q601	0020-0630	"	2SC388A	1
Q602	0020-0442	"	2SC454C	1
Q603,604	0020-0191	"	2SC945 (P,Q)	2
Q605	0000-0140	"	2SA733 (P,Q)	1
Q701	0020-0381	"	2SC2001 (K,L)	1
Q702	0030-0041	"	2SD612K (E,F)	1
Q703	0020-0191	"	2SC945 (P,Q)	1
Q704	0010-0190	"	2SB632K (E,F)	1
Q705	0020-0650	"	2SC2373 (K,L)	1
Q901,902,903	0020-0710	"	2SC1573 (NC)	3
D101,102,106	0050-0014	Diode	OA-90	3
D103	0052-0060	Varistor	ITT-410	1
D104,105	0050-0023	"	2OA-90	2
D107	0054-0020	Zener Diode	RD-4.7EB	1
D108	0062-0061	L.E.D.	LN27RP	1
D401-406,408,410, 412,414,416,418)	0050-0200	Diode	1S954	12
D407,409,411, 413,415,417)	0062-0350	"	TLR124	6
D501-508	0051-0010	Diode	10D-1	8
D509	0054-0060	Zener Diode	RD-7.5EB	1
D510,512	0050-0130	Diode	1S953	2
D511	0054-0050	Zener Diode	RD-6.8EB	1
D513	0054-0091	"	RD-9.1EBD	1
D701,710	0050-0130	Diode	1S953	2
D702	0054-0110	Zener Diode	RD-11EB	1
D703	0051-0010	Diode	10D-1	1
D704,705	0050-0050	"	HV23GBL	2
D706,711	0051-0130	"	BB-4	2
D707	0051-0100	"	10D-2	1
D708	0051-0170	"	2DL-15	1
D709	0051-0110	"	BB-6	1

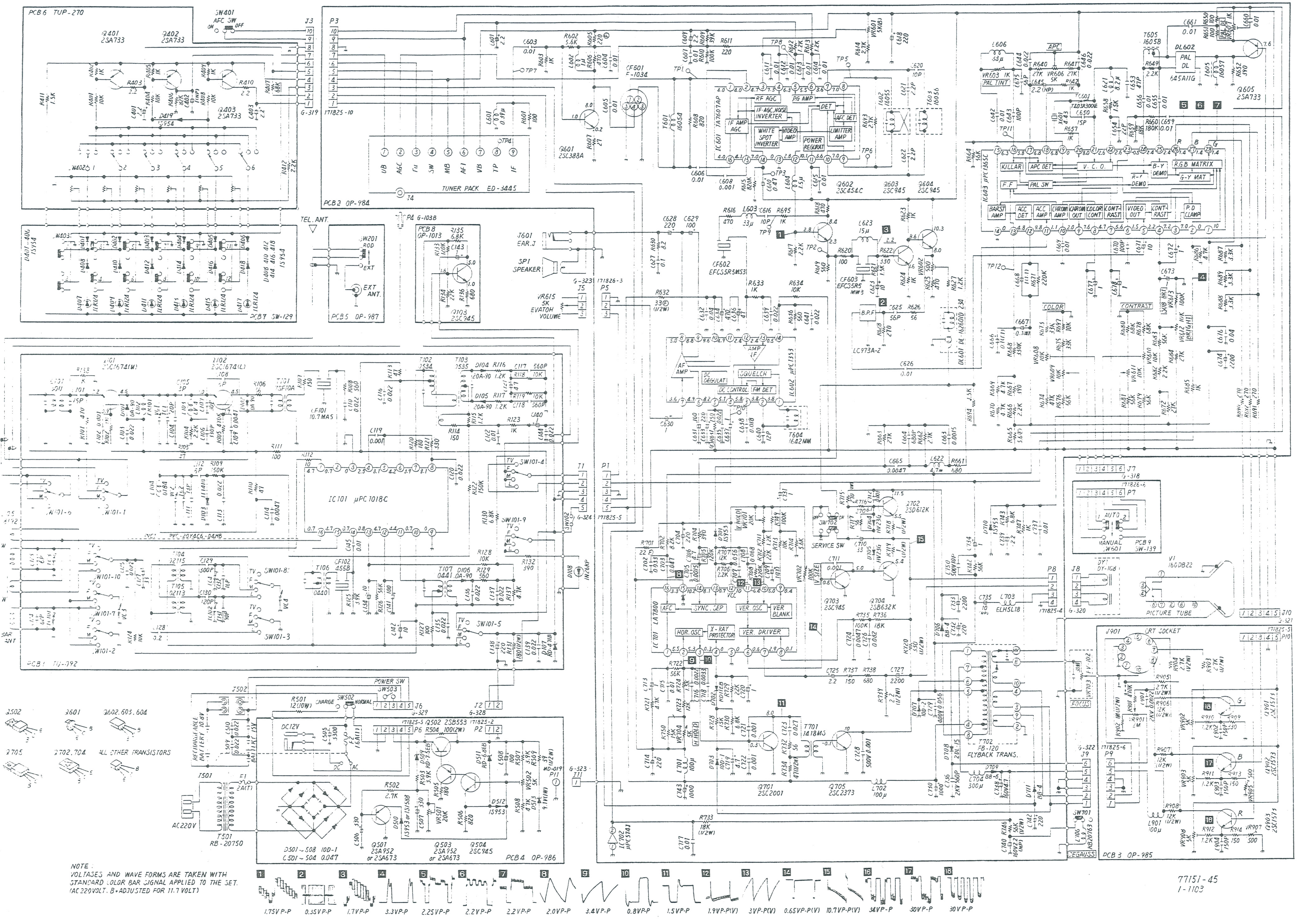
SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
IC101	0073-0030	I.C.	µPC1018C	1
IC601	0079-0500	"	TA7607AP	1
IC602	0079-0060	"	µPC1353C	1
IC603	0079-0420	"	µPC1365C	1
IC701	0079-0510	"	LA7800	1
IC702	0073-0020	"	µPC574J	1
		- COILS & TRANSFORMERS -		
L101	0600-1171	FM ANT Coil	30U	1
L102	0603-0010	FM RF Coil	FR101	1
L103	0606-0010	FM Trap Coil	CV-4	1
L104	0601-1190	FM OSC Coil	0184	1
L105,106	0605-2270	AM/LW Bar Antenna	08192KM	2
L601	0632-0513	Peaking Coil	0.39µH	1
L602	0632-0333	"	1 µH	1
L603,606	0632-0093	"	33 µH	2
L604	0632-0403	"	1.5 µH	1
L621	0632-0073	"	8.2 µH	1
L622	0632-0100	"	472MM 4.7mH	1
L623	0632-0353	"	15 uH	1
L701,702	0607-0052	"	1414MM 100µH	2
L703	0639-0044	Linearity Coil	ELH-5L51	1
L704	0632-0110	Peaking Coil	301MM 33 µH	1
L706	0639-0074	Degauss Coil	RB-20763	1
L901	0607-0052	Peaking Coil	1414MM 100µH	1
T101	0602-0781	FM IFT	7SF10A	1
T102	0602-0731	"	0534KM	1
T103	0602-0741	"	0535KM	1
T104	0601-0630	AM OSC Coil	02115KM	1
T105	0601-3250	LW OSC Coil	02113KM	1
T106	0602-0301	AM IFT	0440KM	1
T107	0602-0311	"	0441KM	1
T501	0513-1190	Power Transformer	RB-20750	1
T601	0602-2532	Video IFT	16054SU	1
T602	0602-2542	"	16055SU	1
T603	0602-2552	"	16056SU	1
T604	0602-1420	Sound IFT	1642MM	1
T605	0602-2560	Color Coil	16057SU	1
T606	0602-2570	"	16058SU	1
T701	0552-0040	H. Drive Trans.	1418MS	1
T702	0556-0200	Flyback Transformer	FB-120	1
		- SWITCHES & JACKS -		
SW101-1∿10	0735-5030	Rotary Selector Switch (TV/AM/FM/LW)	SRZ-L-104MC	1
SW401	0701-0080	Push Switch	SUE12E93	1
SW403	0703-9010	"	SK1005-061Q	1
SW501,J502	0812-0005	Power Socket	HSC0462-01-410	1
SW502	0701-1201	Charge Switch	ESD-27112	1
SW503	0752-0050	Power Switch	SDW1P	1

SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
SW601	0701-1220	Push Switch	ESB-6221	1
SW701	0782-1060	Micro Switch	V-1A	1
SW702	0711-2010	Slide Switch	SW-200-1-4	1
J502	0829-0101	Connector	AC-3-B	1
J901	0840-0004	Picture Tube Socket	HPS0111-01A	1
		- MISCELLANEOUS -		
PCB 1	1531-0920	P.C.Board	TU-092	1
PCB 2	1511-9840	"	OP-984	1
PCB 3	1511-9850	"	OP-985	1
PCB 4	1511-9860	"	OP-986	1
PCB 5	1511-9870	"	OP-987	1
PCB 6	1501-2700	"	TUP-270	1
PCB 7	1541-1290	"	SW-129	1
PCB 8	1511-1013	"	OP-1013	1
PCB 9	1541-1390	"	SW-139	1
PVC 1	0405-0032	P.V.C.	PVC-20Y4C6-04H	1
VR501	0223-2036	Semi-Fixed	EVN-K4AA00B24	1
VR502	0223-5026	"	EVN-K4AA00B53	1
VR601,606	0223-5026	"	EVN-K4AA00B53	2
VR602	0223-5016	"	EVN-K4AA00B52	1
VR603,607	0223-1046	"	EVN-K4AA00B15	2
VR608,610	0223-1036	"	EVN-K4AA00B14	2
VR609,611,612	0201-0593	V.R.	EVH-0TAF15B14	3
VR613	0223-1046	Semi-Fixed	EVN-K4AA00B15	1
VR615	0211-0428	V.R.	EVA-T0HS15A53	1
VR701	0201-1506	"	EVH-0TAF15B24	1
VR702	0223-1046	Semi-Fixed	EVN-K4AA00B15	1
VR704	0201-0587	V.R.	EVH-0TAF15B53	1
VR901	0227-2051	"	EVT-J6AS10B26	1
VR902,903,908	0224-5020	Semi-Fixed	EVL-S0AA00B53	3
VR905,907	0224-5010	"	EVL-S0AA00B52	2
CF101	0390-0056	Ceramic Filter	SFE-10.7MA5	1
CF102	0390-0022	"	SFU-455B	1
CF601	0390-0077	SAW Filter	F-1034	1
CF602	0390-0052	Ceramic Filter	EFCS5R5MS3	1
CF603	0390-0029	"	EFCS5R5MW3	1
TC101,102	0450-0311	Trimmer	TZ03R300E	2
TC601	0450-0311	"	TZ03R300E	1
X601	6600-0100	Crystal	4.433619MHz	1
DL601	0642-0160	Delay Coil	DL-162601D-234	1
DL602	0642-0040	PAL Delay Line	EFD-EN645A11G	1
F 1	1011-0110	Fuse	2 A (T)	1
F 2	1011-0100	"	1.6A (T)	1
DY 1		Deflection Yoke	DY-108	1
V 1	(1691-0010	Picture Tube	160DB22	1
-		Magnet	A46480	1

SYMBOL NO.	PART NO.	DESCRIPTION		Q'TY
-	0440-0015	Tuner Pack	ED-3445	1
-	0835-0010	Antenna Connector	D2-711N-00	1
-	0272-0090	Potention Meter	VPU831B100KX6	1
-	1208-0040	Back Cover, Picture Tube	PS-092	1
-	0390-0030	Chroma Take-up Coil	LC-973A2	1
-	1204-0020	Fuse Holder	NPF109-2-1	2
-	1204-0011	"	YS101	1
-	-	Beads Core	BF07-3.5X1.3	1
-	1203-0070	Test Pin	08051-2bp	1
-	1203-0060	"	SJT-743-3	12
-	1203-0021	Pin Terminal	ST-0015	1


PCB6
U
V-H
V-L
Q401
Q402
Q403
SWITCHING
V-IF AMP
Q601
PAL DL
Q605
TV TUNER
IF OUT
ANT IN
IC601
V-IF AMP
VIDEO AMP
PCB2
TEL ANT
D407, 409, 411, 413, 415, 417
CHANNEL INDICATOR
PCB7
EXT ANT
PCB5
PCB8
Q103
AUDIO AMP
SPEAKER
VIDEO BUFFER
Q602
VIDEO AMP
Q603
BUFFER
Q604
R-Y B-Y R B G
ACC AMP
CHROMA OUT
VIDEO OUT
B.P.F.
DL
IF AMP
AF AMP
FM RF AMP
Q101
FM OSC MIX
Q102
FM DET
D104
D105
FM IF AMP
IC101
AM
(MW SW)
AM OSC CONV. IF.AMP
AM DET
D106
D.Y.
C.R.T.
R
G
B
RADIO +B
TV +B
PCB1
V-DRIVE
Q703
V-OUTPUT
Q702
Q704
G OUT
Q901
SYNC. SEP.
H-OSC
V-DRIVE
15V BATTERY
RE-BATTERY 10.8V
DC 12V
1.6A(T)
CAR BATT.
RECTIFIER
Q501~504
D509~512
REGULATOR
FUSE
2A(T)
AC220V
D501
D508
POWER TRANS.
PCB4
H-V. RECTIFIER
B OUT
Q902
TUNER +B
H-DRIVE
Q701
H-OUTPUT
Q705
T702
F.B.T
IC702
R OUT
Q903
PCB3

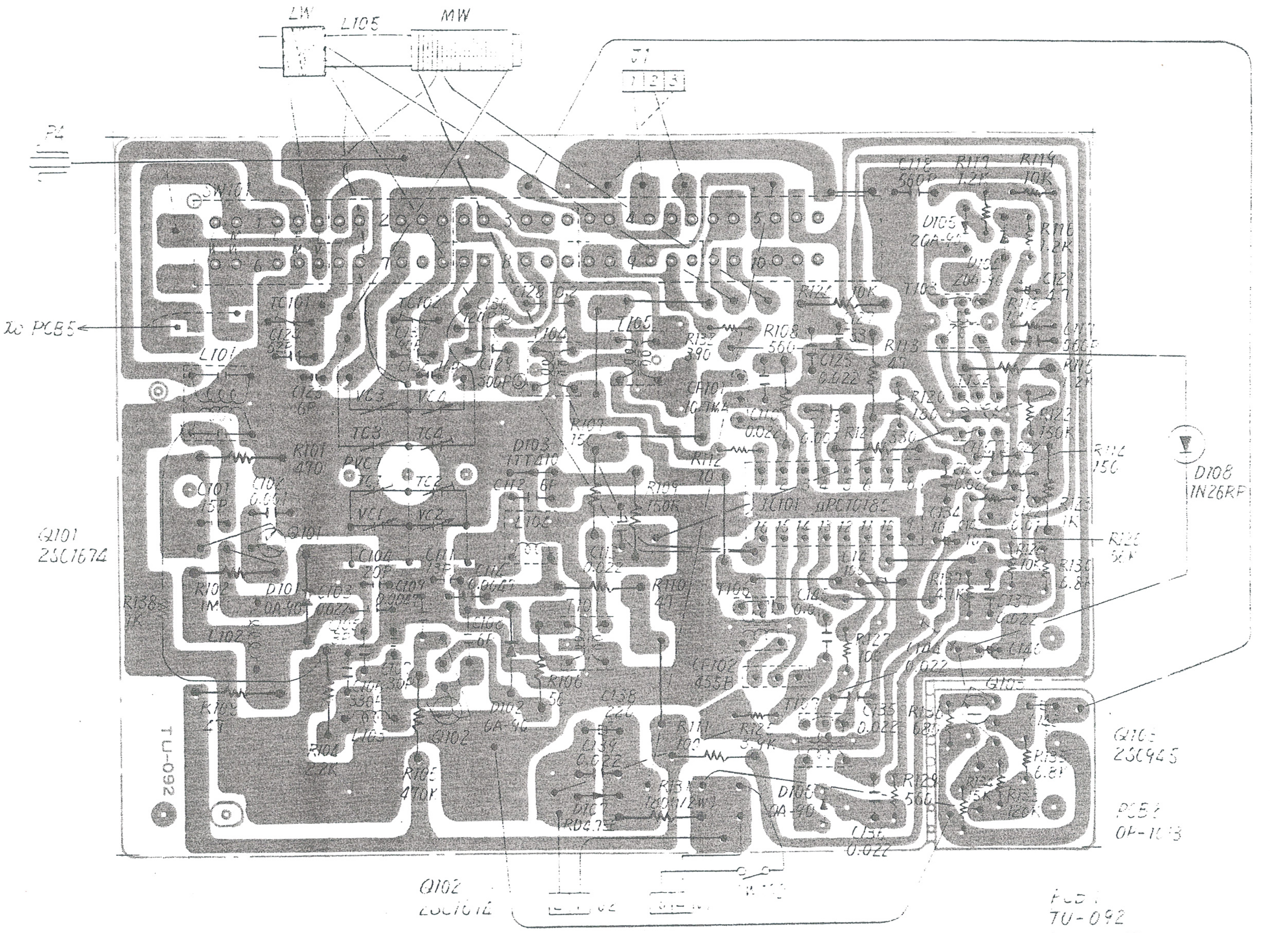
77151 3-1076



PCB6 TUP-270
SW401 AFC SW
Q401 2SA733
Q402 2SA733
Q403 2SA733
PCB7 SW-129
D401~406 1S954
PCB2 OP-984
TUNER PACK ED-3445
UB
AGC
Fu
SW
MB
AFT
VB
TP
IF
TEL. ANT.
SW201 ROD EXT
EXT ANT.
PCB5 OP-987
PCB8 OP-1013
Q103 2SC945
P4 G-1038
J601 EAR.J
SP1 SPEAKER
VR615 5K EVATOH VOLUME
CF601 F-1034
Q601 2SC388A
IC601 TA7607AP
RF AGC
PG AMP
IF AMP AGC
IF-AGC NOISE INVERTER
DET
AFC DET
WHITE SPOT INVERTER
VIDEO AMP
LIMITTER AMP
POWER REGURAT
Q602 2SC454C
Q603 2SC945
Q604 2SC945
CF602 EFCS5R5MS3
CF603 EFCS5R5 MW3
LC973A-Z
DL601 DL-1G2600 234
IC602 μPC1353
AF AMP
DC DEGULAT
SQUELCH
DC CONTROL
FM DET
AMP (F)
T604 1642MM
IC603 μPC1365C
KILLAR
APC DET
V.C.O.
B-Y DEMO
R-Y DEMO
R.G.B MATRIX
G-Y MAT
F.F
PAL SW
BARST AMP
ACC DET
ACC AMP
CHROM AMP
COLOR OUT
COLOR CONT
CONTRAST
VIDEO OUT
CONTRAST
P.D CLAMP
APC
PAL TINT
DL602 PAL DL 645A11G
Q605 2SA733
COLOR
CONTRAST
BRIGHT
PCB1 TU-092
Q101 2SC1674(M)
Q102 2SC1674(L)
IC101 μPC1018C
CF101 10.7MA5
CF102 455B
SW101
PCB9 SW-139
MANUAL SW601
AUTO
J7 G-318
P7
V1 16GDB22
PICTURE TUBE
IC701 LA7800
AFC
SYNC. SEP
VER. OSC
VER BLANK
HOR. OSC
X-RAY PROTECTOR
VER. DRIVER
SERVICE SW
SW702
Q702 2SD612K
Q703 2SC945
Q704 2SB632K
Q701 2SC2001
Q705 2SC2373
T701 1418M3
T702 FB-120 FLYBACK TRANS.
IC702 μPC5741
SW701
DEGAUSS
PCB3 OP-985
J901 CRT SOCKET
Q901 2SC1571
Q902 2SC1573
Q903 2SC1571
G
B
R
PCB4 OP-986
POWER SW
SW502 NORMAL
SW503
CHARGE
RECHARGEABLE BATTERY
DC12V
Q501 2SA952 or 2SA673
Q502 2SB553
Q503 2SA752 or 2SA673
Q504 2SC945
D501~508 10D-1
C501~504 0.047
T501 RB-20750
AC220V
Q502
Q601
Q602, 603, 604
Q705
Q702, 704
ALL OTHER TRANSISTORS
1.75VP-P
0.35VP-P
1.7VP-P
3.3VP-P
2.25VP-P
2.2VP-P
2.2VP-P
2.0VP-P
3.4VP-P
0.8VP-P
1.5VP-P
1.9VP-P(V)
3VP-P(V)
0.65VP-P(V)
10.7VP-P(V)
34VP-P
30VP-P
30VP-P

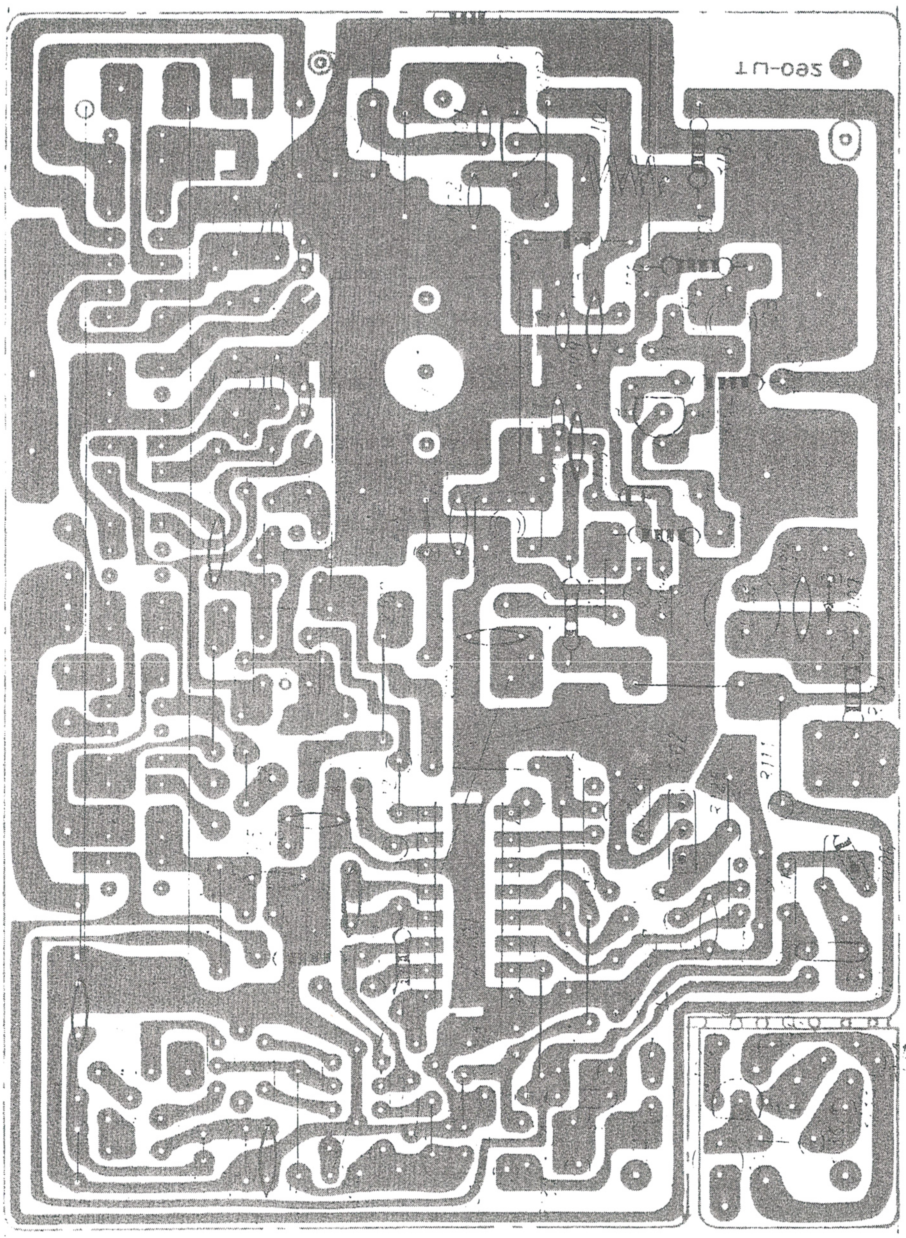
NOTE:
VOLTAGES AND WAVE FORMS ARE TAKEN WITH STANDARD COLOR BAR SIGNAL APPLIED TO THE SET.
(AC220VOLT, B+ADJUSTED FOR 11.7 VOLT)

77151-45
1-1103


LW
L105
MW
J1
1 2 3
P4
to PCB5
SW101
TC101
TC102
C123
L101
VC3
VC4
TC3
TC4
PVC1
TC1
TC2
VC1
VC2
R101
470
C101
15P
C102
0.001
Q101
2SC1674
R102
1M
D101
0A-90
C103
0.022
R138
1K
L102
R103
27
R104
22K
L103
R105
470K
Q102
2SC1674
D102
0A-90
D103
1TT410
C112
6P
C113
0.0022
R106
56
C136
22U
C139
0.022
D107
RD4.7E
R113
100Ω 1/2W
L105
R132
390
R108
560
CF101
10.7MA
R107
15
R112
10
R109
150K
R110
47
CF102
455B
R111
100
R124
10K
C125
0.022
R113
47
IC101
μPC1018C
C118
560P
R117
1.2K
R114
10K
D105
2OA-90
R116
1.2K
D106
R118
C121
47
C117
560P
T103
R115
1.2K
R123
150K
R122
150
R126
56K
R133
1K
R130
6.8K
C140
0.022
D108
1N26RF
Q103
2SC945
R135
6.8K
R134
12K
R129
560
D106
0A-90
C135
0.022
C136
0.022
PCB6
OF-1013
TU-092
Q102
2SC1674
SW102

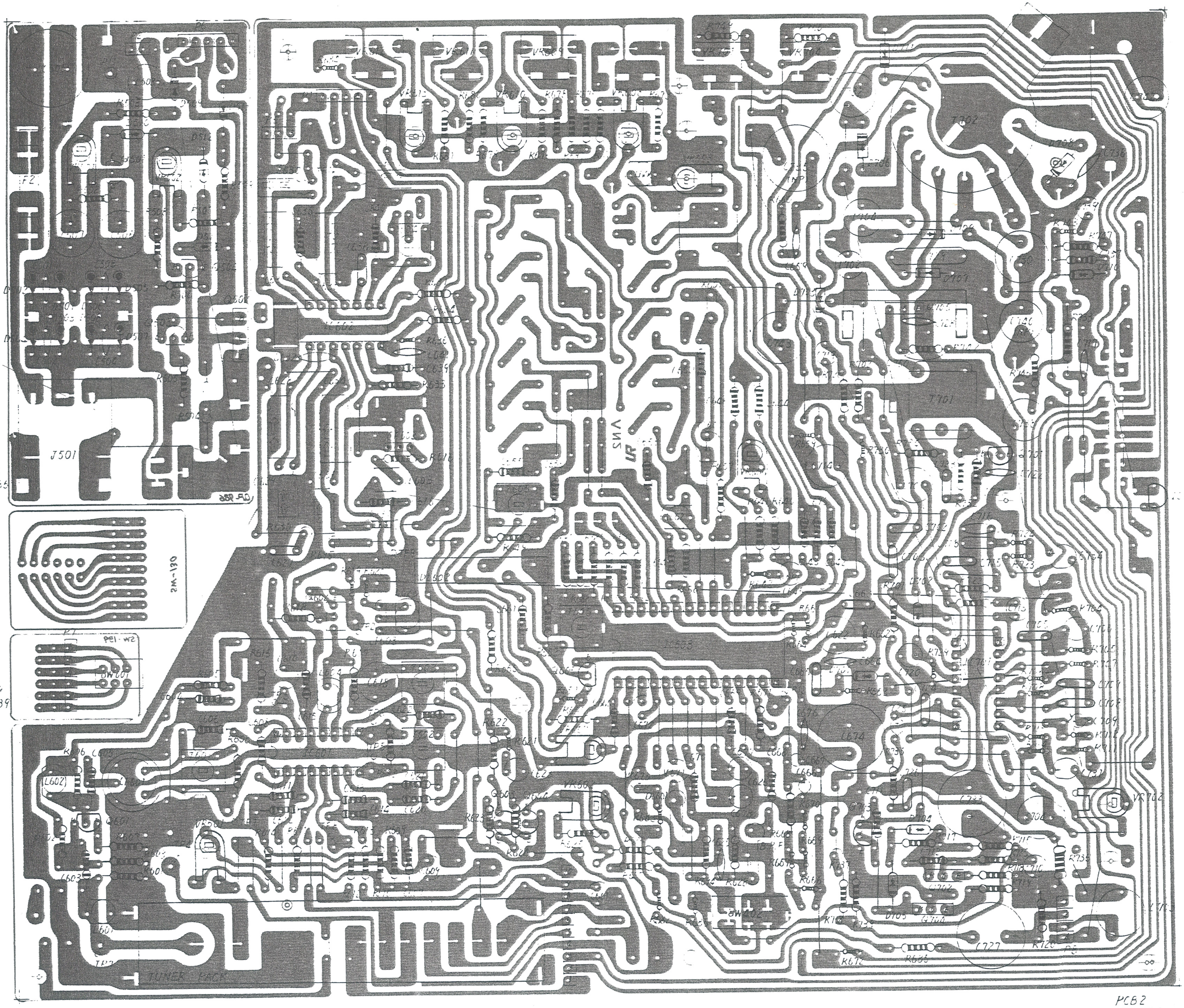
PCB 1
TU-092
Bottom View

77151-45
3-1079

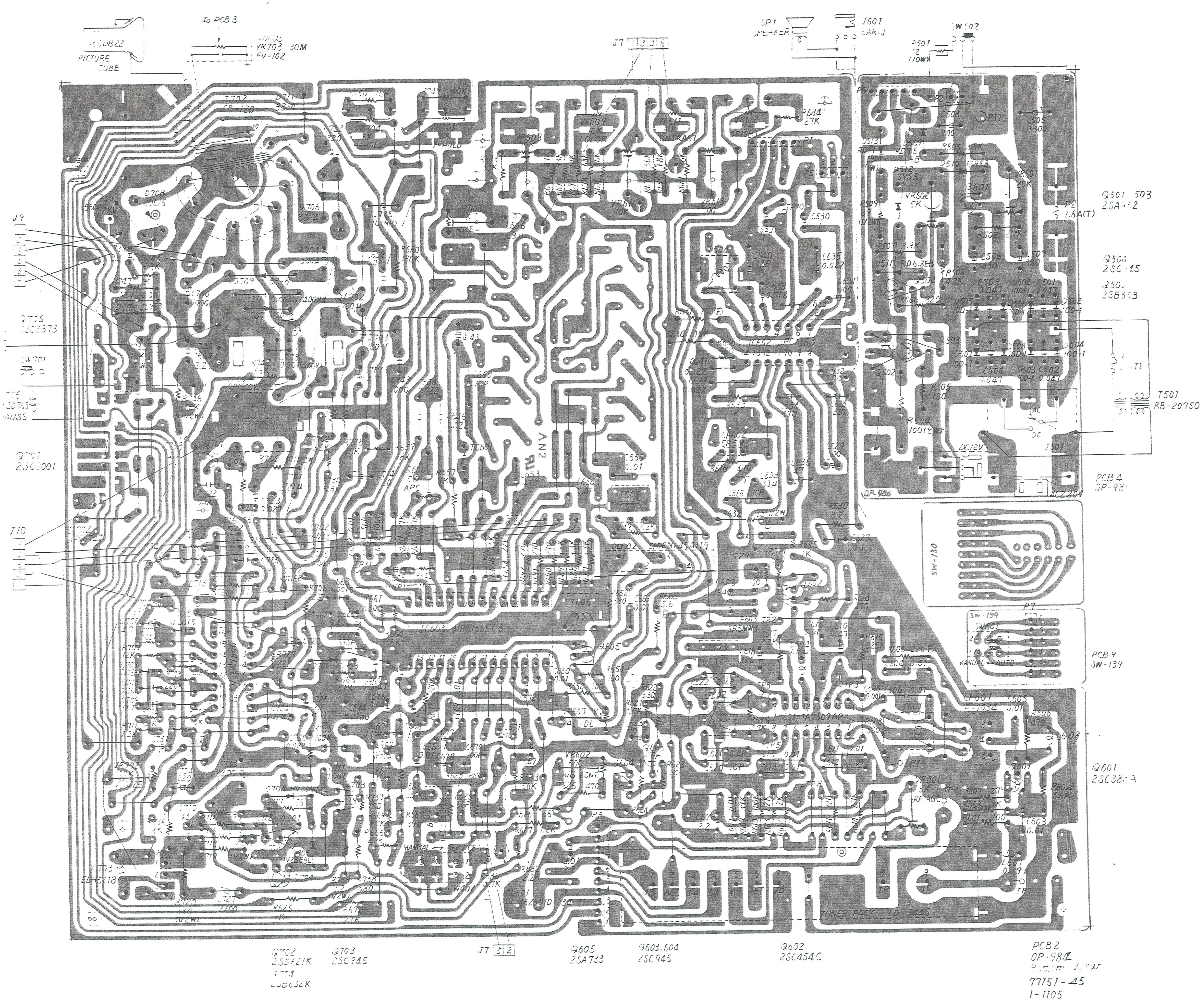

TU-092

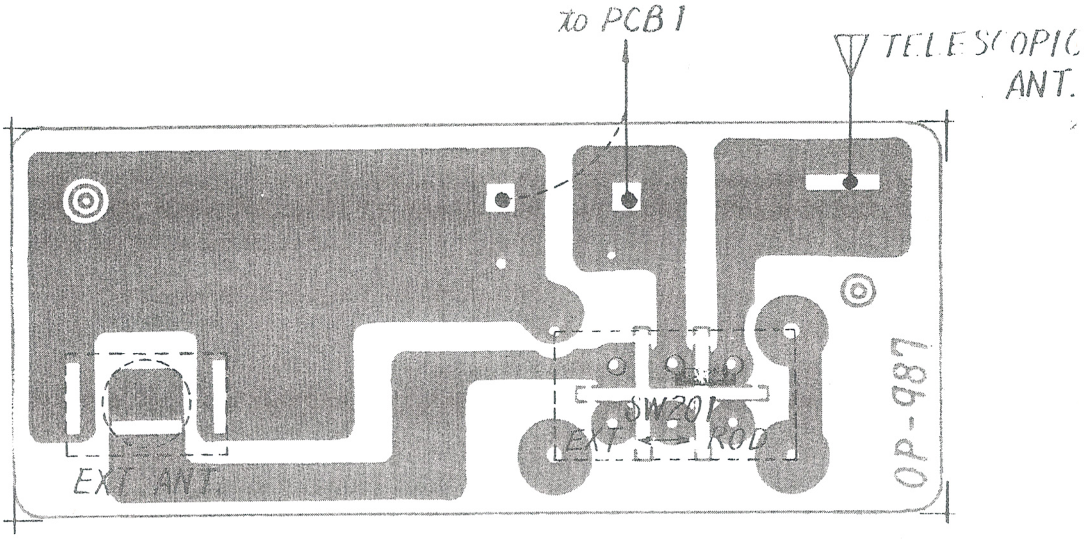
PCB 3
OP-985

PCB 4
SW-139

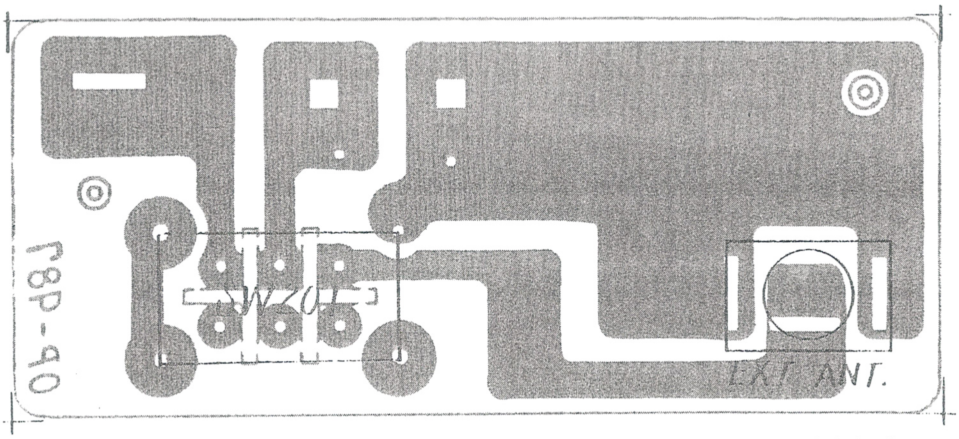

F2
J501
OP-985
SW-130
P1
SW-139
SW601
L602
L603
TUNER PACK
T702
T701
VR702
C674
C733
C727
D103

PCB2
OP-984
Top View
T1151-43
1-1104


PICTURE
TUBE
To PCB 3
VR703 30M
FV-102
J7
SP1
SPEAKER
J601
EAR.J
SW602
R501
(10W)
J9
Q705
2SC2373
SW701
DE-GAUSS
Q701
2SC2001
T10
T702
FB-120
D711
VR704
V-HOLD
VR609
COLOR
VR611
CONTRAST
R684
27K
D708
D706
IC502
IC603
IC601
AN2
TUNER PACK ED-3445
MANUAL
SERVICE
VR602
VR601
RF AGC
F2
1.6A(T)
Q501 503
2SA
Q504
2SC
Q502
2SB
T501
RB-20750
DC12V
AC220V
OP-986
PCB 4
OP-98
SW-130
SW-139
P7
SW601
MANUAL
AUTO
PCB 9
SW-139
Q601
2SC38 A
Q702
2SD621K
Q704
2SB632K
Q703
2SC945
J7
Q605
2SA733
Q603,604
2SC945
Q602
2SC454C
PCB 2
OP-98
77151-45
1-1105

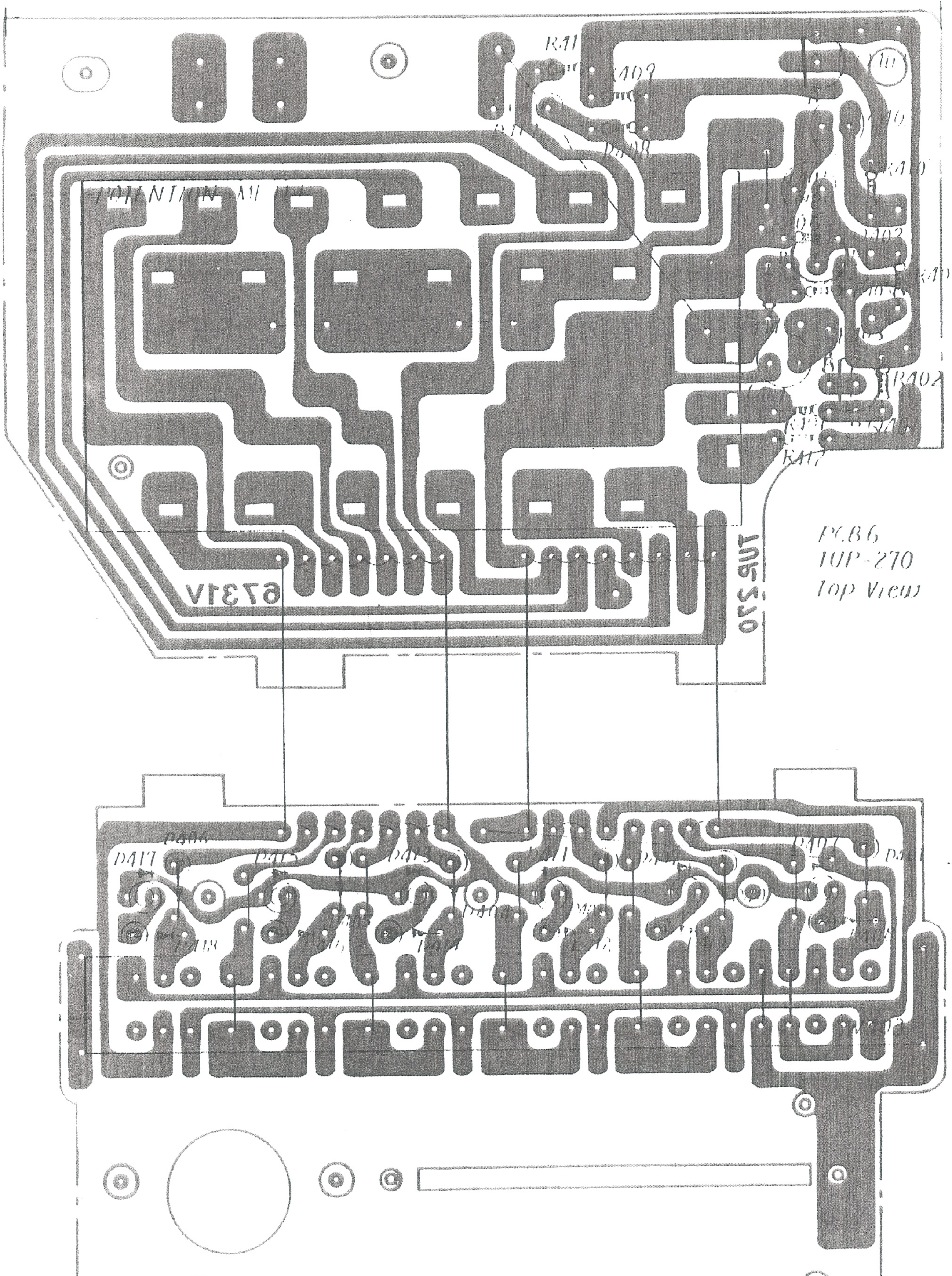

to PCB 1
TELESCOPIC ANT.
SW201
EXT
ROD
EXT ANT.
OP-987

Bottom view


OP-987
SW201
EXT ANT.

PCB 5
OP-987
Top View

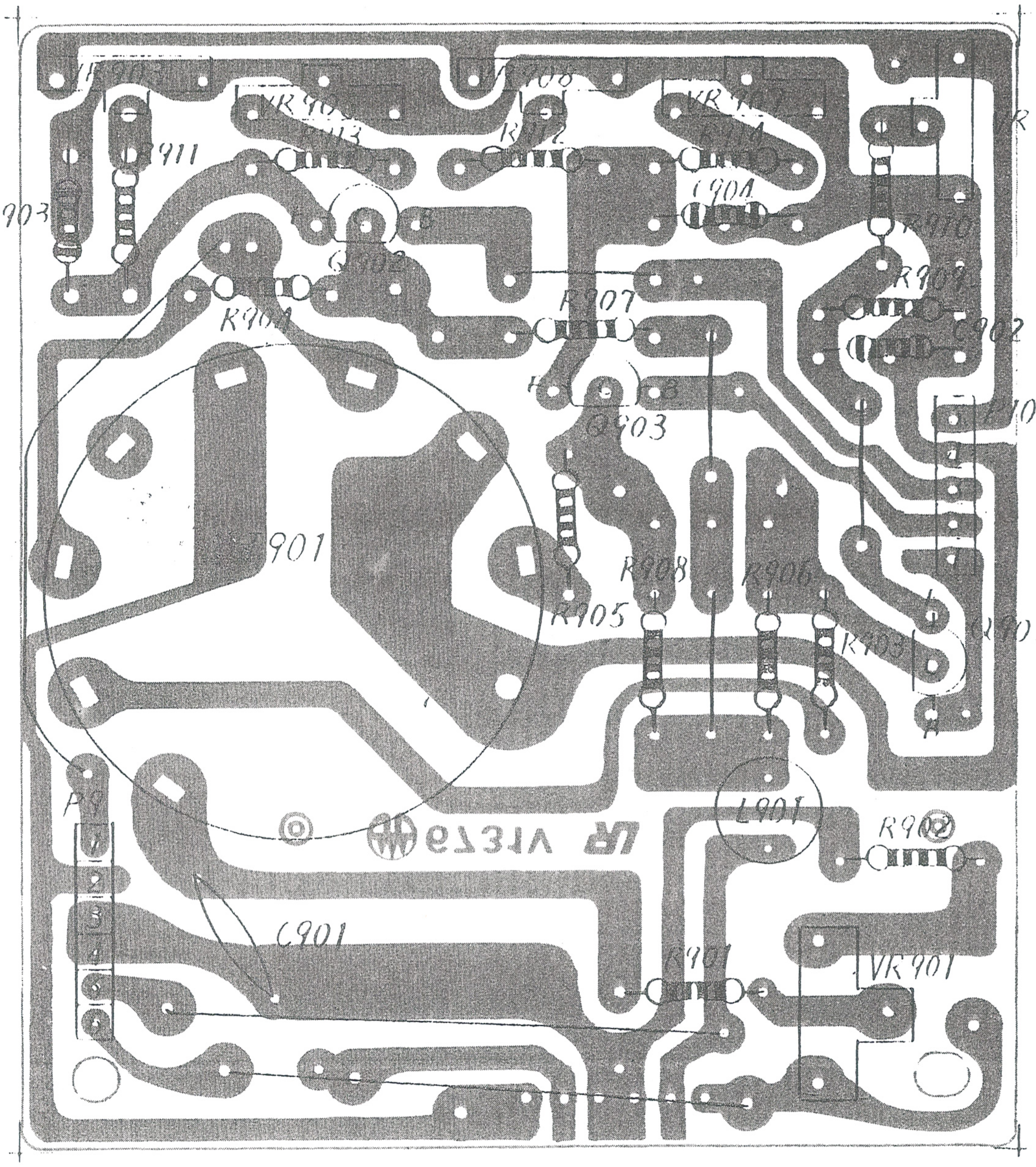
77151-45
4-1215


R417
R409
R410
R401
R402
D408
D417

PCB6
10P-270
Top View

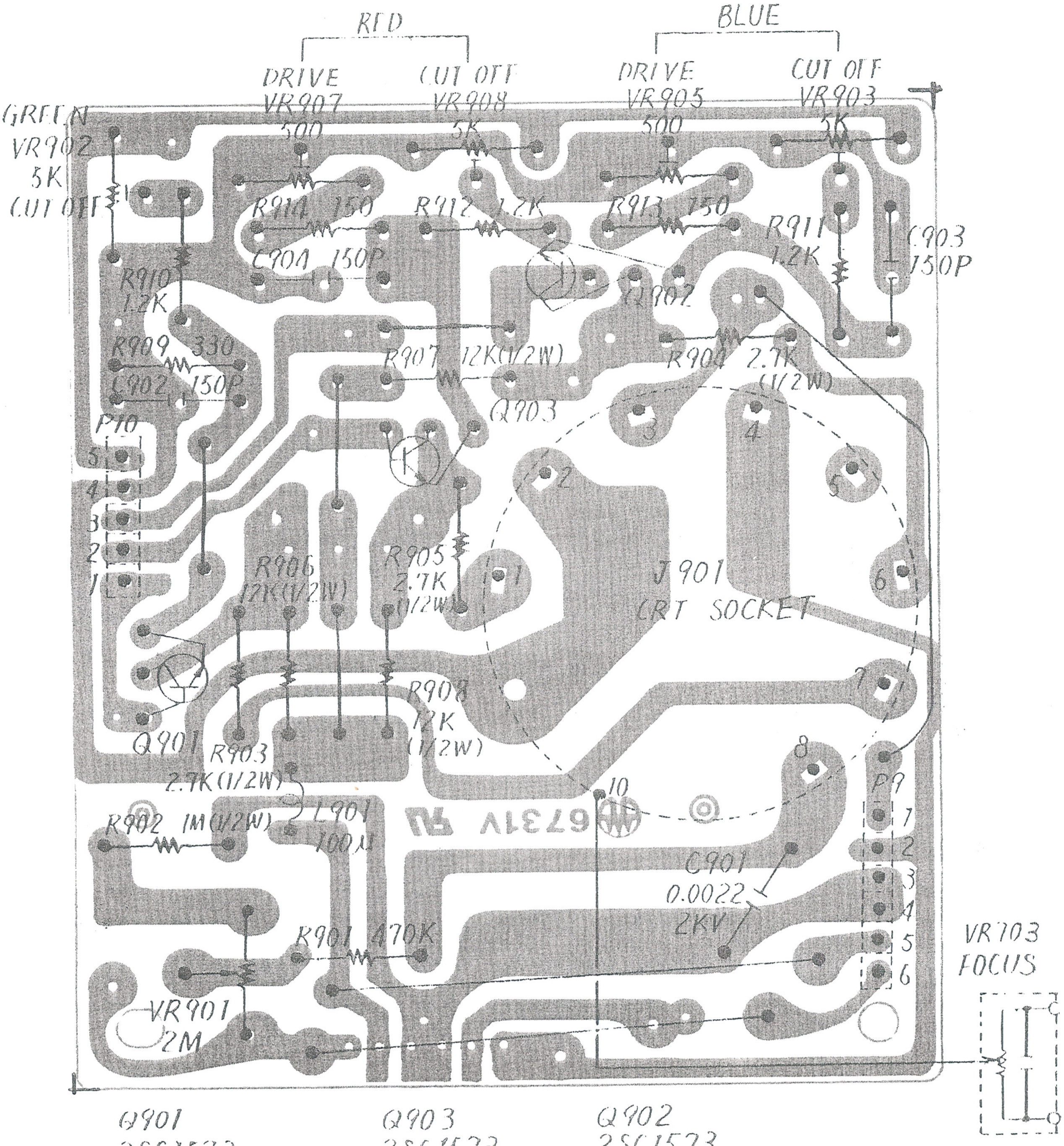
PCB 7
SW-129
Top View

7TT31 45
d 1213


VR903
VR904
R913
VR908
R912
VR907
R914
VR902
R911
C903
C904
R910
Q902
B
R904
R907
R909
C902
Q903
B
P10
T901
R905
R908
R906
R903
Q901
P9
1
2
3
4
5
6
L901
R902
C901
R901
VR901

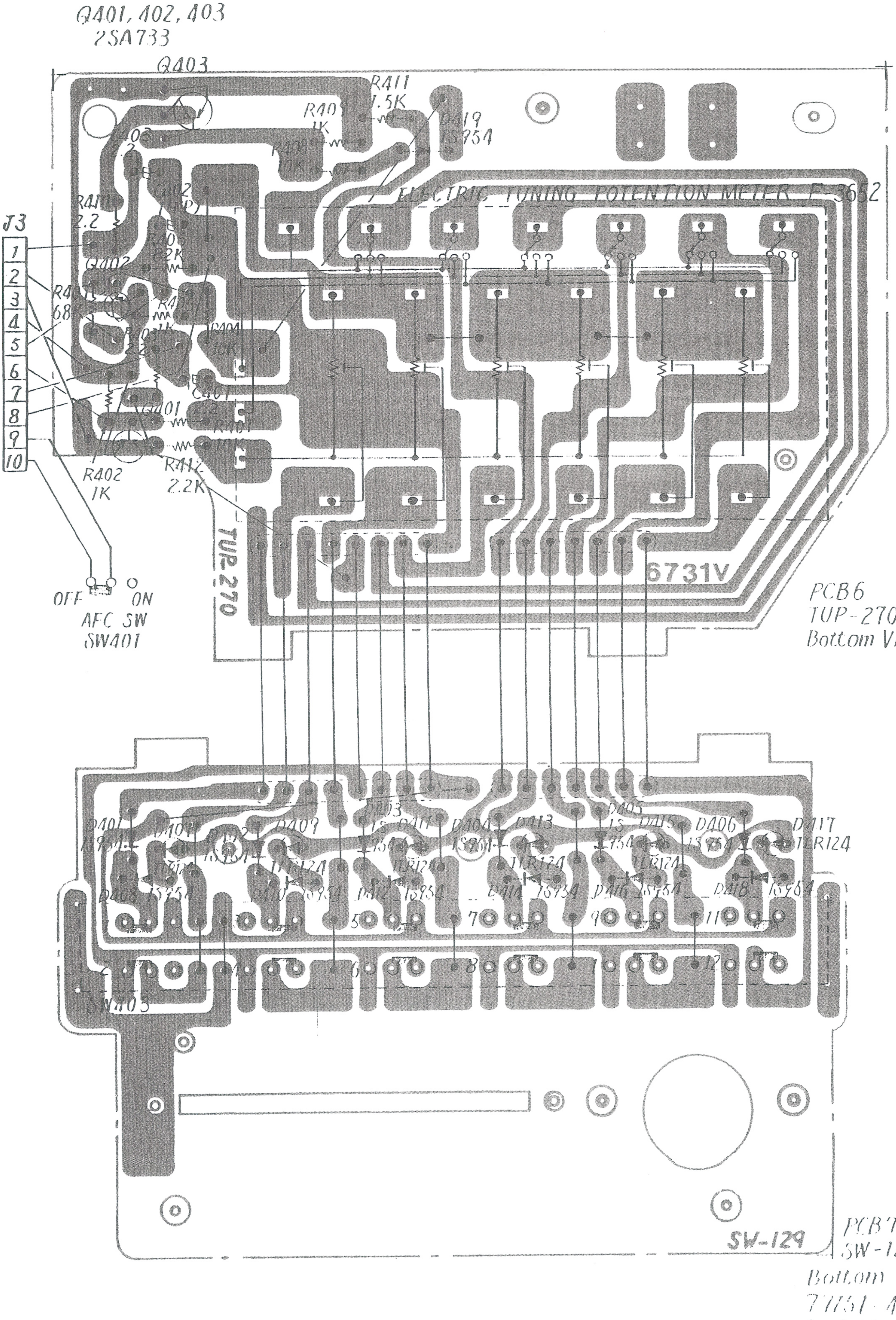
PCB 3
OP-985
Top View

77151-45
4-1211


RED
BLUE
DRIVE
VR907
500
CUT OFF
VR908
5K
DRIVE
VR905
500
CUT OFF
VR903
5K
GREEN
VR902
5K
CUT OFF
R914 150
R912 1.2K
R913 150
R911
1.2K
C903
150P
C904 150P
Q902
R910
1.2K
R909 330
C902 150P
R907 12K(1/2W)
R904 2.7K
(1/2W)
Q903
P10
5
4
3
2
1
R906
12K(1/2W)
R905
2.7K
(1/2W)
1
2
3
4
5
6
7
8
10
J901
CRT SOCKET
R908
12K
(1/2W)
Q901
R903
2.7K(1/2W)
L901
100μ
R902 1M(1/2W)
6731V
P9
1
2
3
4
5
6
C901
0.0022
2KV
R901 470K
VR901
2M
VR703
FOCUS
Q901
2SC1573
Q903
2SC1573
Q902
2SC1573

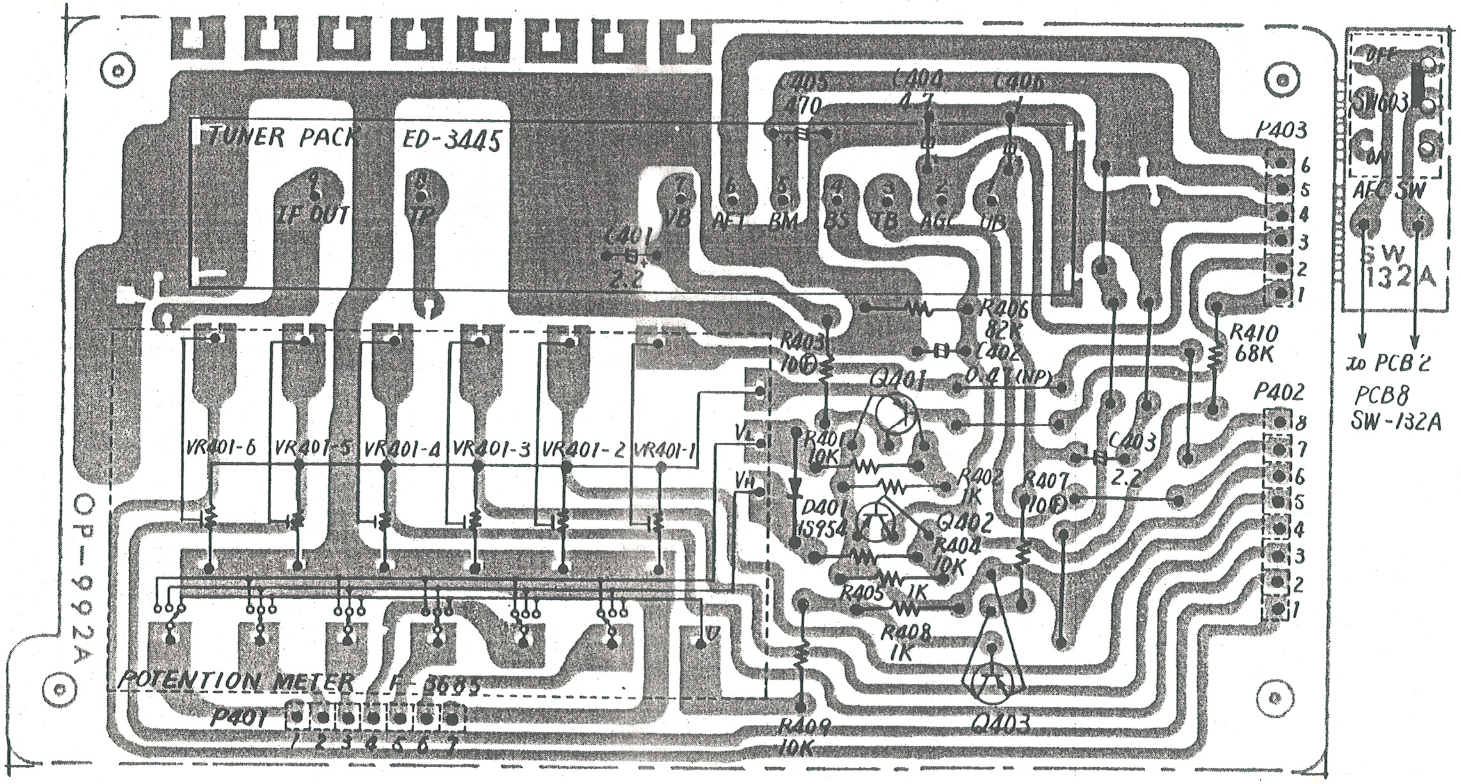
PCB 3
OP-985
Bottom View

77151-45
4-1212


Q401, 402, 403
2SA733
Q403
R411
7.5K
R409
1K
D419
1S954
R403
2.2
R408
10K
ELECTRIC TUNING POTENTION METER F-3652
R410
2.2
Q402
R405
82K
Q402
R401
68K
R403
1K
R407
2.2
C404
10K
C401
2.2
Q401
R401
10K
R412
2.2K
R402
1K
J3
1
2
3
4
5
6
7
8
9
10
OFF
ON
AFC SW
SW401
TUP-270
6731V
D401
1S954
D401
D402
1S954
D409
D403
1S954
D411
D404
1S954
D413
D405
1S954
D415
D406
1S954
D417
1LR124
1LR124
1LR124
1LR124
1LR124
D408
1S954
D410
1S954
D412
1S954
D414
1S954
D416
1S954
D418
1S954
5
6
7
8
9
10
11
12
SW103
SW-129

PCB6
TUP-270
Bottom View

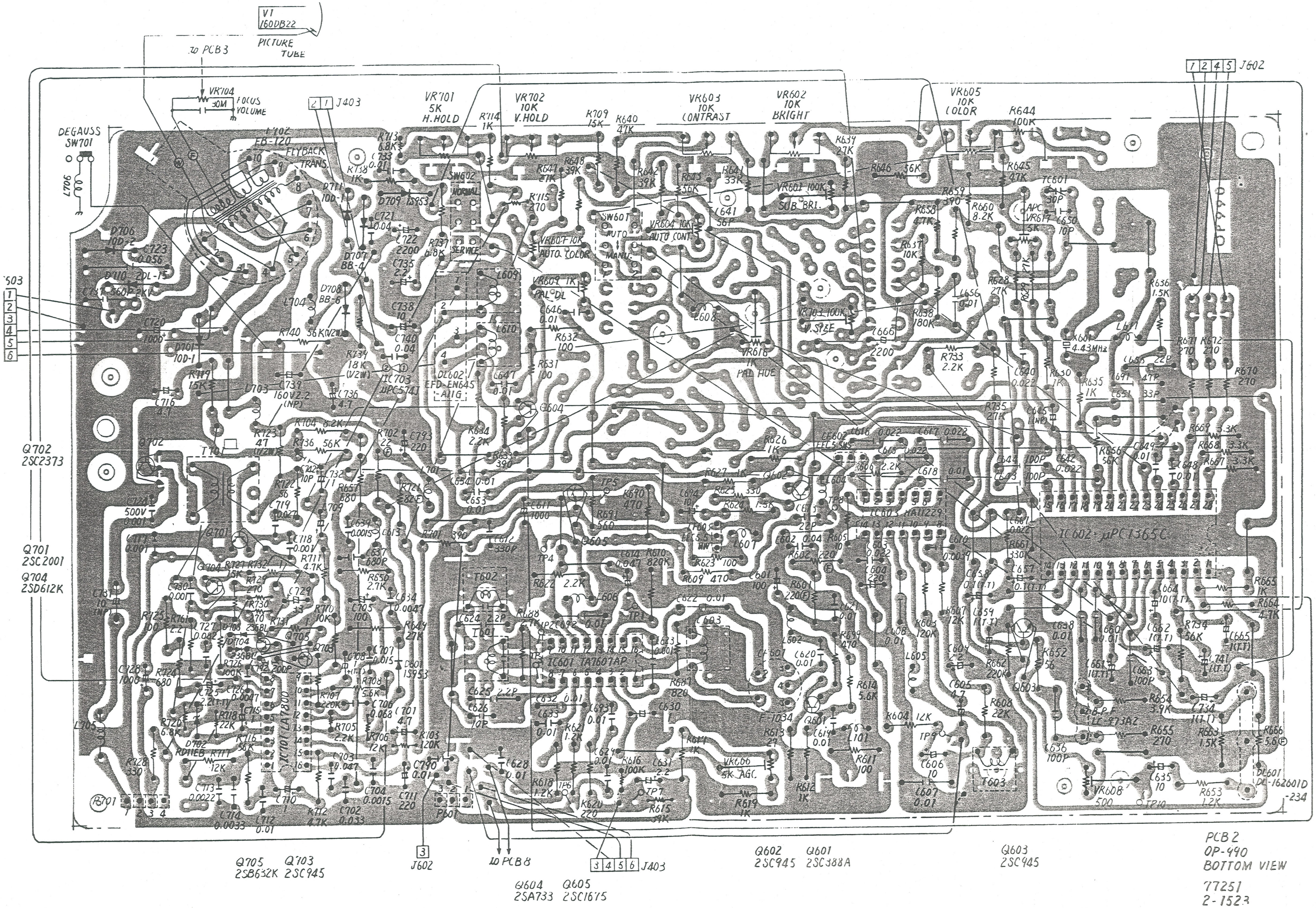
PCB7
SW-129
Bottom View
7751-4B
4-1/14


TUNER PACK ED-3445
9 IF OUT
8 TP
7 VB
6 AFT
5 BM
4 BS
3 TB
2 AGC
1 UB
C401 2.2
C405 470
C404 4.7
C406 1
P403
6 5 4 3 2 1
R406 82K
C402 0.47(NP)
R403 10K
Q401
R401 10K
R402 1K
D401 1S954
Q402
R404 10K
R405 1K
R408 1K
R407 10K
C403 2.2
R410 68K
P402
8 7 6 5 4 3 2 1
R409 10K
Q403
VR401-6
VR401-5
VR401-4
VR401-3
VR401-2
VR401-1
VL
VH
POTENTION METER P-3685
P401
1 2 3 4 5 6 7
OP-992A
OFF
SW603
ON
AFC SW
SW 132A
to PCB 2
PCB8
SW-132A

Q401, 402, 403
2SA733

PCB6
OP-992A
BOTTOM VIEW

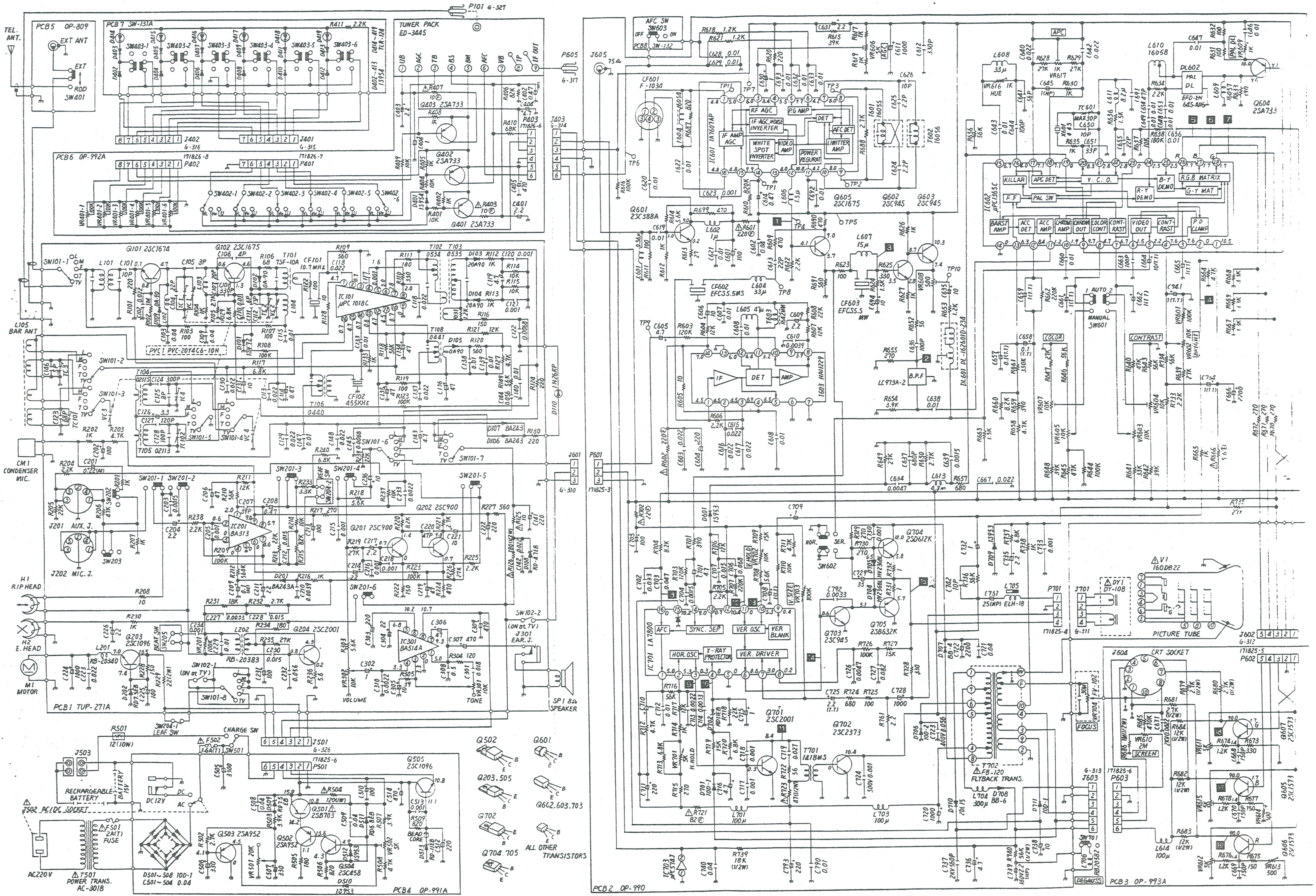
7725,1
4-1252



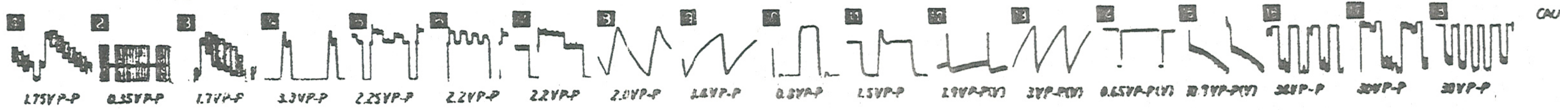
V1
160DB22
PICTURE TUBE
TO PCB3
VR704
FOCUS VOLUME
J403
DEGAUSS SW701
L706
L702 FB-120
FLYBACK TRANS.
VR701 5K H.HOLD
VR702 10K V.HOLD
VR603 10K CONTRAST
VR602 10K BRIGHT
VR605 10K COLOR
R644 100K
J602
SW602 NORMAL SERVICE
SW601 AUTO MANU.
VR601 100K SUB BRI.
VR604 10K AUTO CONT.
VR607 10K AUTO COLOR
VR609 1K PAL DL
VR703 100K V.SIZE
VR616 1K PAL HUE
VR617 5K APC
X601 4.43MHz
J503
DL602 EFD-EN645 A11G
IC703 µPC574J
IC603 HA11229
IC602 µPC1365C
IC601 TA7607AP
IC701 LA1800
T101
T602
T603
B.P.F. LC-273AZ
VR606 5K AGC
VR608 500
DL601 DL-162601D-234
P701
P601
TO PCB8
Q702 2SC2373
Q701 2SC2001
Q704 2SD612K
Q705 2SB632K
Q703 2SC945
Q604 2SA733
Q605 2SC1675
Q602 2SC945
Q601 2SC388A
Q603 2SC945

PCB 2
OP-490
BOTTOM VIEW

77251
2-1523


TEL. ANT.
PCB5 OP-809
EXT ANT
ROD
SW401
PCB7 SW-131A
TUNER PACK ED-3445
P101 G-327
P605 G-317
J605 75Ω
PCB6 OP-992A
Q401 2SA733
Q402 2SA733
Q403 2SA733
Q101 2SC1674
Q102 2SC1675
IC101 μPC1018C
CF101 10.7MHz
CF102 455KHz
L105 BAR ANT
CM1 CONDENSER MIC.
J201 AUX. J.
J202 MIC. J.
H1 R/P HEAD
H2 E. HEAD
M1 MOTOR
IC201 BA313
Q201 2SC900
Q202 2SC900
Q203 2SC1096
Q204 2SC2001
IC301 BA514A
VOLUME
TONE
J301 EAR. J.
SP1 8Ω SPEAKER
PCB1 TUP-271A
J503
RECHARGEABLE BATTERY
BATTERY 15V
DC12V
J502 PC/DC SOCKET
F501 2A(T) FUSE
AC220V
T501 POWER TRANS. AC-301B
D501~508 10D-1
C501~504 0.04
Q502 2SA952
Q503 2SA952
Q504 2SC458
Q505 2SC1096
Q501 2SB703
PCB4 OP-991A
Q502
Q601
Q203, 505
Q602, 603, 703
Q702
Q704, 705
ALL OTHER TRANSISTORS
AFC SW SW603
PCB8 SW-132
CF601 F-1034
IC601 TA7607AP
IF AMP AGC
RF AGC
IF AGC NOISE INVERTER
WHITE SPOT INVERTER
VIDEO AMP
PG AMP
DET
AFC DET
LIMITTER AMP
POWER REGURAT
T601 16055
T602 16056
Q601 2SC388A
Q605 2SC1675
Q602 2SC945
Q603 2SC945
CF602 EFC5.5MS
CF603 EFC5.5MW
I603 HA1229
IF
DET
AMP
LC973A-2
B.P.F
DL601 DL-1628010-234
IC602 μPC1365C
KILLAR
APC DET
V.C.O.
B-Y DEMO
R-Y DEMO
R.G.B. MATRIX
G-Y MAT
PAL SW
F.F
BARST AMP
ACC DET
ACC AMP
CHROMA AMP
CHROMA OUT
COLOR CONT
CONT RAST
VIDEO OUT
CONT RAST
P.D CLAMP
APC
L608 33μ
VR616 1K HUE
X601
L610 16058
DL602 PAL DL
Q604 2SA733
COLOR
CONTRAST
SW601 AUTO MANUAL
IC701 LA7800
AFC
SYNC. SEP
VER OSC
VER BLANK
HOR. OSC
X-RAY PROTECTOR
VER. DRIVER
H.HOLD
V.HOLD
SW602 HOR. SER.
Q701 2SC2001
Q702 2SC2373
Q703 2SC945
Q704 2SD612K
Q705 2SB632K
T701 1418MS
T702 FB-120 FLYBACK TRANS.
L705 ELH-18
DY1 DY-108
V1 160DB22
PICTURE TUBE
FOCUS
FV-102
VR704 30M
VR610 2M SCREEN
J604 CRT SOCKET
Q605 2SC1573
Q606 2SC1573
Q607 2SC1573
PCB3 OP-993A
IC703 μPC574J
DEGAUSS
L706 RB20382
PCB2 OP-990

NOTE :
VOLTASES AND WAVE FORMS ARE TAKEN WITH
STANDARD COLOR BAR SIGNAL APPLIED TO THE SET.
(AC 220VOLT, B+ADJUSTED FOR 11.7 VOLT)



CAUTION : SINCE THESE COMPONENTS MARKED BY
⚠ ARE CRITICAL FOR SAFETY, USE
ONES DISCRIBED ON PARTS LIST ONLY.

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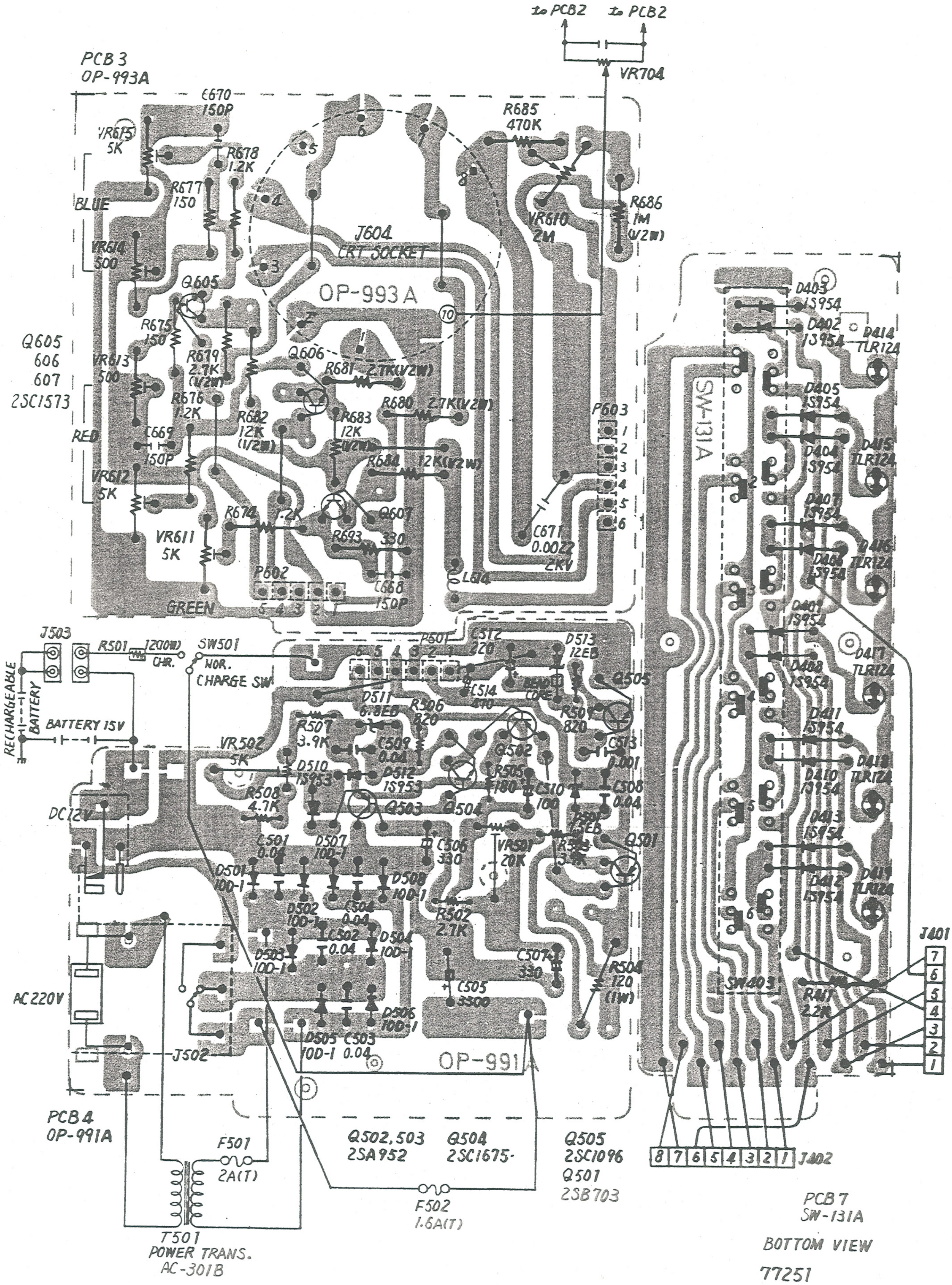
to PCB2
to PCB2
VR704
PCB3
OP-993A
C670 150P
VR615 5K
R678 1.2K
R677 150
BLUE
VR614 500
Q605
Q605 606 607 2SC1573
R675 150
R679 2.7K (1/2W)
VR613 500
R676 1.2K
RED
C669 150P
VR612 5K
VR611 5K
GREEN
R674 1.2K
R682 12K (1/2W)
R683 12K (1/2W)
Q606
R681 2.7K(1/2W)
R680 2.7K(1/2W)
R684 12K(1/2W)
Q607
R693 330
P602
C668 150P
J604 CRT SOCKET
OP-993A
R685 470K
VR610 2M
R686 1M (1/2W)
P603
C671 0.0022 2KV
L614
J503
R501 120Ω(1W) CHR.
SW501 NOR. CHARGE SW
RECHARGEABLE BATTERY
BATTERY 15V
P501
C512 220
D513 12EB
C514 470
BEAD CORE
Q505
R509 820
D511 6.8EB
R506 820
R507 3.9K
C509 0.04
VR502 5K
Q502
C513 0.001
D510 1S953
D512 1S953
R505 180
C510 100
C508 0.04
R508 4.7K
Q503
Q504
D509 15EB
Q501
DC12V
C501 0.04
D507 10D-1
C506 330
VR501 20K
R503 3.9K
D501 10D-1
D508 10D-1
D502 10D-1
C504 0.04
R502 2.7K
C502 0.04
D504 10D-1
D503 10D-1
C507 330
R504 120 (1W)
AC220V
C505 3300
D506 10D-1
J502
D505 10D-1
C503 0.04
OP-991A
PCB4
OP-991A
F501 2A(T)
T501 POWER TRANS. AC-301B
F502 1.6A(T)
Q502, 503 2SA952
Q504 2SC1675
Q505 2SC1096
Q501 2SB703
SW-131A
D403 1S954
D402 1S954
D414 TLR124
D405 1S954
D404 1S954
D415 TLR124
D407 1S954
D406 1S954
D416 TLR124
D401 1S954
D408 1S954
D417 TLR124
D411 1S954
D410 1S954
D418 TLR124
D413 1S954
D412 1S954
D419 TLR124
SW403
R411 2.2K
J401
J402
PCB7
SW-131A
BOTTOM VIEW

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